The perception of music : an essay on musical understanding, phenomenology and the contents of musical experience

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THE PERCEPTION OF MUSIC:
AN ESSAY ON MUSICAL UNDERSTANDING, PHENOMENOLOGY AND THE CONTENTS OF MUSICAL EXPERIENCE

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ABSTRACT

Much attention has recently been paid in aesthetics to the question of how a listener understands music, or what constitutes comprehending listening. While this debate is quite interesting, I am more concerned with a more foundational question: What is it that a listener must attend to in order to understand music? One suggestion that has been proposed by Mark DeBellis is that a listener must attend to the phenomenal quality of their auditory experience. This view is motivated by the thought that the phenomenology of musical experience should hold in common between both musically trained and musically untrained listeners. However, much evidence has been made available in the cognitive science of music perception suggesting that listeners with different levels of ability hear music differently.

In this dissertation, I will examine the phenomenology of music through a detailed study of DeBellis' theory of music perception and the contents of musical experience. DeBellis argues that the phenomenal quality of musical experience must hold in common between both trained and untrained listeners because the contents of experience are nonconceptual, meaning that it is not requisite that a listener should possess any music-theoretic concepts in order for them to be in a perceptual state with a certain intentional content.

I will argue that the phenomenological claim is unfounded. The contents of musical experience do not represent mind-independent properties of the external world. The empirical evidence of music perception and cognition reveals that subjects must possess a special psychological ability for the representation of musical pitch. These results can be given a strong or weak interpretation. On the strong interpretation, the necessary psychological ability would count as a conceptual ability, in which case DeBellis' theory of nonconceptual contents for musical experience would be flawed. On the weak interpretation, the contents of musical experience would be nonconceptual but would not be mind-independent. Rather we must posulate a new distinction between nonconceptual contents that are mediated and nonconceptual contents that are unmediated. On either interpretation, the phenomenological claim for musical understanding is shown to be false.

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Dedicated to the memory of

Andrew Harrison

1938 – 2005,

my mentor.

ACKNOWLEDGMENTS

My motivation for writing this dissertation comes from two experiences—one musical, the other philosophical. Once when I was in music school, I was listening to an album with my mother. The album was Miles Davis' *Kind of Blue*. On that album, there are six musicians: one drummer, one bassist, one pianist, two saxophonists and one trumpeter. While I could clearly distinguish the six instruments, my mother could not. She reported only hearing the drums, bass, piano and *one* trumpet—she could not hear the two saxophones even though these were playing different parts from the trumpet. It was not until I drew her attention to the two saxophones by singing their parts that she could hear them. And after gaining this knowledge, she reported that her experience of the music sounded different to her—'Now I can hear it'. Should we take her report at face value? Did she really not hear something previously to what she can now hear? Cases like this, where an added piece of knowledge seems to change the listening experience, are surprisingly rather common. There is a popular song by the Red Hot Chili Peppers that I have listened to dozens of times. One day a friend pointed out to me that, in the background behind the drums, you can make out the rhythmic sound of a train engine. After having had that pointed out to me, the rhythm of that song never sounded the same again. It seems as though my perceptual experience of the song had changed irrevocably.

The second experience that motivates my writing this dissertation is a conversation I had with my MA tutor in Bristol, Andrew Harrison. My MA thesis was concerned with the ontology of musical works. There I was most interested in examining what it is to hear the same song again, with understanding how we identify the complex sequence of sound-events as a familiar tune. During the course of my discussions with Andrew on this topic, he suggested that the really interesting question was not how do we recognise the same song, but rather how do we recognise a sound as being the same musical tone. As a fledgling student, I had no answer ready, nor at that time did I even possess the philosophical means to know how to approach the question. Andrew's question has haunted me since—this dissertation constitutes my first attempt at addressing that old question. I regret not being able to discuss my answer with him before his passing.

There are many people to whom I owe a debt of gratitude for their assistance in the writing of this dissertation, many of whom are undoubtedly unaware of their contributions, so I will start with the most obvious and work my way to the least obvious. First, my supervisors and tutors at King's: I owe much to Keith Hossack whose patience and perseverance at supervising my work helped to me complete this dissertation, and whose many comments and insights always pointed me in a fruitful direction. I also greatly admire and appreciate his taking an interest in a topic that was admittedly foreign to his own interests, and hope that he enjoyed our discussions as much as I did, including those on the history of jazz. I have profited from many interesting and helpful discussions with Anthony Savile, who supervised me until his semi-retirement, as well as Peter Goldie, Jim Hopkins, Elisabeth Schellekens and Mark Textor. I am indebted to Mark DeBellis for the correspondence that we shared, which helped to clarify some of my thinking on his work; to Carolyn Wilde for her continued interest in and encouragement of my studies; and to Renee Timmers for our discussions of empirical research in the psychology of music. I must thank Tiger Roholt whose own dissertation on music and philosophy of mind inspired me to follow that path as well, and with whom I hope to continue our collaborations in the future; and Francisco Pereira whose many discussions on perception have been greatly helpful. I owe thanks to nearly everyone at the British Society of Aesthetics for all of their support and guidance, especially Diarmuid Costello, Terry Diffey, Robert Hopkins, Matthew Kieran, Peter Lamarque, Derek Matravers, Alex Neill, Kathleen Stock, and Ed Winters. I should thank all of those friends who over the years have quietly saved me from making many a terrible mistake: Aaron Bogart, Neil Dillon, Era Gavrielides, Jessica Leech and Janiv Palsberg; and my friends, family members and poker partners who have helped to keep me sane: Alison Bartel, Daniel Bartel, Bob Bartosch, Peter Busk, Christian Denker, Lewis Evans, Signe Glahn, Paul Guay, Rich McClure and Claudia Pereira. Finally, I must also express thanks to my long-suffering girlfriend, Jennifer Courtney, who, not being a philosopher herself, grudgingly knows more about my dissertation than she would like.

CHAPTER ONE:

UNDERSTANDING, PHENOMENOLOGY AND THE PROBLEM OF MUSIC PERCEPTION

> 'Of course, in a sense, science like mathematics or the violin, can only be perfectly understood by specialists. Still, the rudiments may be of public use. Greenwood here', indicating the little man in the blazer, 'doesn't know one note of music from another. Still, he knows something. He knows enough to take off his hat when they play "God save the King". He doesn't take it off by mistake when they play "Oh, dem Golden Slippers".'
>
> — from *The Club of Queer Trades*
> G. K. Chesterton

1.1 *The Problem of Musical Understanding*

Many philosophers have claimed that appreciating music requires understanding it. The claim is that it is not enough for a listener simply to be perceptually responsive to some auditory stimulus for that listener to appreciate music. Animals and electronic instruments can display sensitivity to acoustical phenomenon, in some cases where sensitivity to acoustical stimuli can be greater than that of humans, but we would not thereby attribute musical appreciation to animals or inanimate objects. Appreciating music, at the very least, must be a conscious affair open to introspective awareness—a listener must be able to look inside (or 'listen inside' as the case may be) and attend to whatever quality of their experience it is that is musically salient. However music is appreciated, it is appreciated consciously.

So for some listener to appreciate a piece of music, they must to some extent understand what they have heard. That sounds all well and good, and that much is widely agreed upon, but when the philosophical discussion turns to what understanding amounts to, what counts as understanding, what are the conditions that a listener must meet in order to be attributed musical understanding, or whether there is one correct understanding, then opinions vary. A minimal account of musical understanding must take into account what could be described as the immediately heard musical properties. When one is listening to music, one hears not just sounds ordered in sequence that vary in pitch. Rather one hears phrases, cadences, melodies, harmonies, tonal motion, tension, resolution, tempo, and dynamics. Some also claim that expression and emotion should count as

immediately heard properties in the music, but these are rather controversial. It would suffice to say, however, that the uncontroversial properties that one immediately hears in the music must be part of our account of musical understanding.[1]

Much recent debate has centred on two main opposing positions. On one end of the spectrum is the view that understanding music requires that the listener must grasp not only those immediately heard musical properties discussed above but also the listener must grasp some more large-scale structural properties of a musical composition.[2] This view holds that some large-scale 'architectural' properties of the structure of a piece of music must play a role in the listener's appreciation of the music—for want of a better term, this view could be called *structuralism*, which should not be confused with Continental structuralism. For a listener to fully appreciate a piece of music on this view, the listener must recognise the musical form of a piece as there is an appreciable difference between a piece's being, say, a sonata and its being a fugue, or even more remotely between a piece's being a sonata and its being a twelve-bar blues. It is claimed that it is relevant to the appreciation of a piece that the listener hear, register and respond appropriately to the sonata form (or fugue or whatever).

Against this is *concatenationism* as defended by Jerrold Levinson, which is the view that all a listener needs to be attributed understanding is to attend appropriately to those immediately presented musical properties.[3] Understanding music on this view is just being able to follow the music as it moves along—it is sufficient for appreciation that the listener hears how it is that one phrase or segment of music follows from that previously heard. The listener need only understand what she is hearing in the present moment and be able to link this to what immediately preceded and what will immediately follow; those large-scale 'architectural' properties of a piece of music being left over to the expert for intellectual enjoyment, which is not requisite for musical appreciative enjoyment.

A problem common to either view is to account for the untrained-but-comprehending listener. Think of it this way: for a listener to understand an utterance of some language, they must grasp the meaning of the utterance, which

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[1] For discussion of these points, see Budd (1995), Davies (2003), Goodman (1976), Kivy (1990), Levinson (1990) and (1997), Matravers (1998), Raffman (1993), and Scruton (1983).

[2] For examples of a defence of this view, see Kivy (1990) and Scruton (1983).

would at least require some proficiency with the language in question. However, there seems to be no neat analogue of this in musical understanding. If a listener is to understand the utterance '*Schnee ist weiss*', then grasping the meaning of this utterance would at least require some proficiency with spoken German. What proficiency must a listener have in order to understand Gershwin's *Rhapsody in Blue*? Must a listener have some proficiency with music theory? Or with the harmonisation of chords in jazz music? Must the listener be musically literate? This all seems to be much too strong—if we were to reserve musical understanding for those listeners with training in music theory, then we would seem to be denying understanding to the vast bulk of listeners who clearly do enjoy and appreciate music. On the other hand, what does it mean for an untrained listener to understand some piece of music when they lack theoretical knowledge? While theories on either end of the spectrum must struggle to explain how understanding is not dependent upon musical training, clearly what we are calling structuralism would be at a disadvantage, as in addition it must explain how it is that a listener can attend to the musical form of a piece without possessing any theoretical knowledge.

A further question to ask is whether understanding comes in degrees, or is there one correct way to understand a musical work. If musical understanding does come in degrees, then it would seem that the problem of the untrained-but-comprehending listener would vanish. The untrained listener understands to the degree that they are capable, and this differs in the degree to which the trained listener can understand. If this is the way that the debate over musical understanding should be taken, then we must resist the temptation to ask whether the understanding of the trained listener should be preferable to the understanding of the untrained listener. However, I find this temptation much too strong. But if we reject the thought that musical understanding does come in degrees, then we are led into the really interesting problem, namely if there is a correct way to understand a piece of music and untrained listeners are at no disadvantage to attaining this compared to trained listeners, then what is it that holds in common between both trained and untrained listeners that constitutes understanding?

The problem of the untrained-but-comprehending listener is one that I

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[3] See Levinson (1997).

personally have long found deeply perplexing. I know what I do when I pay attention to a piece of music. I am a professionally trained musician—I was trained in a music conservatory. When I listen to music, I analyse what I hear. I dissect the music into its rhythms, beats, melodies, and chords, down to the individual notes that make up the complex whole. Listening to music for me is like watching a game of chess, or examining a mathematical proof: it is a test of my ability to analyse what I hear into recognisable and predictable patterns so that I might better be able to anticipate what will come next.

But this isn't what most people do when they listen to music, nor should we think that this intellectual game is somehow necessary for musical understanding. As Malcolm Budd says:

> To experience music with musical understanding a listener must perceive various kinds of musical processes, structures and relationships. But to perceive phrasing, cadences and harmonic progressions, for example, does not require the listener to conceptualise them in musical terms. A listener can experience these phenomena whether or not he hears them under the description they are given in a correct analysis of the music. This description applies to the experience of a listener who experiences the music with understanding; but the listener does not need to recognise this fact in order to have the experience it describes.[4]

Budd's claim here is that understanding a piece of music is just the enjoyment of an experience whereby one perceives certain musical qualities, but while these musical qualities can be described in music-theoretic terms, it is not necessary that a listener must *think* of the music in these theoretic terms. There is nothing more to understanding these musical qualities than just to hear them. On this view, what I, as a trained musician, am doing when I theoretically analyse a piece of music is conceptualising it in the music-theoretic terms that I have learned—that is, I am doing something conceptual in addition to perceiving and experiencing the music. And that is all well and good, but we should remember that this conceptualising is not equivalent with *experiencing* the music. On Budd's view, understanding musical experience precedes understanding music theory.

Concerning the question of correct understanding, it seems that what Budd has in mind is what I had described as the more interesting view. It seems that on Budds' view, there is a kind of musical understanding that would hold in common between the trained and the untrained listener. If the untrained listener can hear the same musical qualities that the trained listener can hear, as Budd suggests, then we

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[4] Budd (1985): 247.

need not worry about degrees of understanding. This seems to be a point that Kivy also makes when he claims that the difference between the understanding of Tibby and Mrs. Munt is not a matter of degree but rather a matter of their ability to express what it is that they understand. As Kivy says of the difference between the experiences of Tibby and Mrs. Munt, 'a quantitative world of difference indeed there is; but there is no qualitative difference at all'.[5] For Kivy, as it seems to Budd too, there is a common 'way it is' for the musical experience of the trained and untrained listener.

My concern in this dissertation is not with adjudicating between structuralism and concatenationism—my desire is not to enter into the debate over what constitutes musical understanding. Rather I am concerned with a more foundational problem that must precede the discussion of understanding. What interests me is to uncover just what it is that a listener must attend to in order for them to understand a piece of music if what the trained and untrained listener understands holds in common, and this, as I mentioned above, is really the question that has long perplexed me. As I said, I know what I pay attention to when I listen to music—I pay attention to all of those immediately presented musical properties, which I attempt to identify and categorise in all their fine detail. When I listen to music, I pay attention to those properties that I have been trained to identify. But what do untrained listeners attend to? Surely, they must attend to the same things that I do but without employing the recognitional abilities that I possess. They must hear and recognise the same things that I do, but in some pre-theoretical manner. Whatever it is that the untrained listener attends to, it is something that I presumably just take for granted as it has been a long time since I have been a naïve listener and it must be this that grounds the understanding of both of us. If both trained and untrained listeners are equally able to understand some piece of music, then question is what common ground is there between my experience and the untrained listener's experience that grounds this understanding? What is it that is 'qualitatively' the same for the trained and untrained listener?

Mark DeBellis has taken up the challenge of identifying just what this mysterious quality is. Inspired by Budd's remarks, DeBellis claims that it is the

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[5] Kivy (1990): 68.

phenomenology of the perceptual experience that one must attend to.[6] Musical experience is rich with phenomenal feel—there is a particular way it feels to hear a particular melody or phrase—and the way that music feels phenomenally is independent of one's music-theoretic understanding. As Diana Raffman says, musical understanding 'fairly glitters with "raw feels"'.[7] This is what I call the *phenomenological claim*: the phenomenology of musical experience holds in common between both trained and untrained listeners and it is this that grounds musical understanding. The phenomenological claim would hold that, despite my musical training and the lack of such training among any other listener, the phenomenological feel of musical experience must be the same for me as it is for any other listener.[8] If the phenomenological claim is true, then this may form the bedrock upon which the claims of musical understanding can be erected.

DeBellis offers one very compelling argument for the phenomenological claim—the example of the intermediate ear-training student. In an ear-training course, an instructor typically starts off by playing pairs of notes on the piano and instructs the students on how to identify what intervals are being played. For a student to learn this, DeBellis argues, all the student has at her disposal is the way the music sounds. The student must learn to identify intervals by listening to and distinguishing between the different ways that intervals sound. According to the phenomenological claim, this sort of learning is only possible because musical experience does sound to be a certain way, and there is no prerequisite that a listener must meet, no training that they must go through, in order for this to be the case. This argument is an instance of what I call the Argument from Perceptual Learning.[9] In its most general form, the argument claims that, if subjects do indeed learn or acquire concepts from experience, then the subject must be perceptually sensitive to the relevant feature of experience before their having acquired the concept, otherwise learning from experience would not be a real case of learning. That the Argument from Perceptual Learning underwrites DeBellis' example of the

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[6] This is a claim that is evident in nearly all of DeBellis' writing, though he makes the argument explicitly in his (1995). See especially §§1.2, 2.3 and 3.4 in reference to the quote from Budd.

[7] Raffman (1993): 50.

[8] Interestingly, in a recent conference paper, DeBellis (2006) has gone so far as to suggest that the sort of conceptual understanding that the trained listener brings to musical experience may in some cases be a burden as the trained listeners becomes caught up in an intellectual exercise that clouds their pure enjoyment of the music.

[9] I take the Argument from Perceptual Learning to be a form of what Bermúdez calls the 'developmental explanation'. See Bermúdez (2003c): 294.

ear-training student is obvious—the student learns something by attending to some perceptible feature of her auditory experience, she acquires some new knowledge or skill; and if this is a real case of learning, then she could not have possessed the skill prior to acquiring it perceptually.

Of course the most immediate objection that one might raise against the phenomenological claim is that perceptual experiences are private mental states, and yet the phenomenological claim seems to suggest that I can know what it is like for someone else to experience a piece of music. However, DeBellis' intermediate ear-training student example is meant to provide an intuition that contradicts this objection. It would be hopeless to think that an instructor could tutor a student in ear training unless we already found it intuitively compelling to believe that the way that the music sounds to one listener must be qualitatively similar to the way that is sounds to another listener. This intuition certainly does not sweep the objection aside, but it does take away the sting. DeBellis' example seems to provide a hopeful start for the phenomenological claim, and for grounding musical understanding in the phenomenology of perceptual experience. Whatever 'musical understanding' amounts to, it must be grounded in the phenomenology of music perception: the experience of listening to music feels a certain way; and it is this phenomenal feel that is all there is ultimately to musical understanding. It is argued that subjects are able to possess an understanding of music despite their lack of theoretical knowledge because the phenomenology of music is something we just get for free—that is, it is just part of the perceptual experience.

But I worry that the phenomenological claim may be unfounded—the thought that the experience of listening to music really is phenomenally much the same for me as it is for any other listener is an assumption (albeit an intuitively appealing one) in need of an argument. Why should this be so? What is it that grounds the phenomenology of musical experience? What is it that guarantees that the way that musical experience is for me is phenomenally like the way that it is for anyone else?

My intention in this dissertation will be to show that the phenomenological claim is unfounded. It would be enough to show that this claim is unfounded by showing that at least one musically salient feature of experience—that is, some feature that we would think should play a role in musical understanding—does not hold in common between different subjects. I believe that this can be shown by

closely examining the contents of perceptual experiences that represent tonality. By doing this, I hope to show that the phenomenology of musical experience is not something that we get for free—that is, the phenomenology of musical experience is not available to naïve perception. By *naïve perception*, I am not referring to the theory of perception known as Naïve Realism. Rather I simply mean perception that is unmediated by anything mental or cognitive, as would be the case with perceiving shapes or colours. Think of it this way: the phenomenology of colour experience is something that we just get for free—that is, the qualitative character of our colour experience results from our having a visual system that is physiologically constituted in a certain way that is responsive to certain properties of the external world. The phenomenology of colour experience is just part of the workings of any naïve perceptual system that is constituted in the right physiological way. In this dissertation, I will argue that the phenomenology of musical experience, on the other hand, is not so naïve.

Showing how the phenomenological claim fails will require much backing up. As said above, the claim can be shown to fail when we examine the contents of musical experience. I will therefore need to review the argument that musical experience does indeed have content—that is, that it exhibits intentionality—and that the phenomenology of musical experience can be captured by a purely intentional account of the contents of musical experience. In this, I will largely be following DeBellis, who has recently developed an intentional theory of musical experience.[10] On DeBellis' view, the contents of musical experience are nonconceptual. DeBellis' argument is that a listener can be in a certain content-bearing perceptual state independently of whether or not they possess those very concepts that would normally constitute a belief-state with the same content. If two subjects can be in type-identical content-bearing perceptual states regardless of either subjects' level of musical training, then their perceptual experience must be phenomenally type-identical as well (remembering that DeBellis defends an intentional theory of musical experience, so two perceptual states that possess type-identical contents should be phenomenally type-identical as well). Therefore the phenomenology of musical experience must hold in common between both trained (or conceptual) listeners and untrained (or nonconceptual) listeners.

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[10] Again, while this is a theme running through all of DeBellis' work, the argument for the intentional theory of musical experience is the focus of his (1991).

This is where I think the phenomenological claim goes wrong. I will argue that those musical properties that are represented in perceptual experience are not the sort of properties that can be represented in naïve perceptual experience. Rather, the properties that are salient to our experience of music are what could be thought of as 'tertiary' properties—properties that are mental or intentional.[11] That this is the case can be shown by examining empirical evidence that has been uncovered by psychologists and cognitive scientists studying music perception and cognition. My argument will be that the contents of a subject's perceptual states are dependent upon their possession of some cognitive ability as demonstrated by the empirical evidence; therefore it is theoretically possible that trained and untrained listeners may not be in the same content-bearing perceptual states as untrained listeners may lack the cognitive abilities of trained listeners; therefore their perceptual experiences may not be phenomenologically type-identical. I will offer both a strong argument and a weak argument against the phenomenological claim. The strong argument will be that the psychological abilities required for the representation of musical pitch are conceptual abilities, and so the contents of musical experience are conceptual. The weak argument will be that the contents of musical experience are nonconceptual; however these contents form a special class of nonconceptual contents that are strongly mind-dependent. Either of these arguments would be sufficient to show that the phenomenological claim is unfounded as both arguments require that the subject possess a special psychological ability for the representation of musical pitch, and insofar as two listeners can differ in respect of their possession of this ability, then to that extent the content of these listeners musical experiences may be phenomenologically distinct as well.

As such, this dissertation will have both a major and a minor theme. The major theme of this dissertation is to understand what the phenomenological claim would require and to show that this is unattainable. I will address this by examining the perception of music and the contents of musical experience under the guiding idea that understanding must follow from perceiving. As such, the bulk of my

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[11] Scruton makes a similar argument that musical properties are tertiary. See his (1983): 87. While Scruton and I arrive at the same conclusion, his method is very different from mine. His argument is based on a priori reasoning of the metaphor of musical movement when contrasted with spatial movement whereas mine will be based on an examination of the cognitive science of musical perception and cognition.

discussion of musical understanding will largely go on in the background of the theory of music perception. However, my discussion of the perception of music will then reveal the minor theme of this dissertation, namely that the problem of music perception creates some difficulties for nonconceptualist accounts of the contents of musical experience.

1.2 *The Phenomenology of Music*

Before moving on, I should say a bit more about the phenomenological contribution that tonality makes to musical experience. Providing a complete account of the phenomenology of musical experience would be a very complicated task indeed as we would need to take into account a seemingly vast number of perceived properties. Some of things that would need to be accounted for would be pitch, rhythm, tempo, dynamics, timbre, articulation, phrasing, formal structure and so on. That being said, what I want to focus on here is tonality. Tonality is the defining characteristic of musical pitch and music theorists claim is the most fundamental property of music. The difference between hearing a musical pitch and hearing a non-musical sound is that the non-musical sound does not possess tonality. I will explain.

The physical basis of auditory experience is our perceptual sensitivity to sound waves—to regular disturbances of air pressure. Sound waves can be physically described as a set of frequencies resonating at a certain degree of intensity for a certain temporal duration. All sounds can be described in terms of their physical frequency, intensity and duration, so consequently a minimum account of any auditory experience must account for these physical properties—if musical experience does have content, then the properties of frequency, intensity and duration must figure in that content somehow. But empirical psychologists have found that a description of this physical basis alone is not enough to capture one's experience of music. In listening to music, the listener does not simply hear tones of a certain frequency—some higher and some lower—additionally the listener hears notes that stand in certain relations to each other, and the relations that notes stand in to one another cannot be reduced simply to physical frequency.

For instance, consider the octave relation. If musical pitch could be reduced to physical frequency, then tones that are closer in physical frequency should sound to

be more closely related than tones that are further away in physical frequency. The tone 440Hz is higher than the tone 220Hz; however, 440Hz is closer in physical frequency to 415Hz than it is to 220Hz; so, 440Hz should sound to be more closely related to 415Hz than to 220Hz as they are closer in physical frequency. However, much empirical evidence, as well as commonsense intuition, proves inconsistent with this claim. Typically, tones that are separated by a ratio of 2:1 are heard by musically sophisticated subjects as being more closely related to each other than tones that are closer in physical frequency.

Tones that are an octave apart are heard as being harmonically equivalent—that is, they share the same harmonic function. The tendency to group tones across the entire physical frequency spectrum into octaves allows a subject to categorise what should be a wide array of auditory stimulus into twelve discreet 'pitch classes'.[12] And this is just what tonality is: the harmonic function of a certain pitch class within a particular harmonic context. That musical tones possess this property is just what distinguishes musical sounds from non-musical sounds—musical sounds are heard as having some harmonic function, while non-musical ones do not. Tonality is the property of a certain tone's sounding to be related to other tones in an harmonic way. It is necessary for a listener to hear sound-events as possessing tonality for that listener to hear the sound as being music. (I will return to this claim and examine it in more detail in Chapters Three, Four and Seven.)

Just to avoid one possible confusion, this is what tonality is not: it is not the ability to hear a tone *as being* the note A—tonality is not the ability to identify tones by note-name. Being able to identify tones by note-name requires perfect pitch, and is the ability to remember two instances of a tone within a certain range.[13] It is not necessary that a listener should possess perfect pitch in order for tonality to figure in their perceptual experience.

Now I should say something about the phenomenology of tonal hearing. Within a given musical context, some notes will sound to be 'more stable' than other notes. The 'unstable' notes will sound as if they are being 'pulled' toward one of the more stable notes. To hear a tone as standing in a certain relation to another tone is to hear the tones as standing in these stability relations (what music theorists

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[12] Assuming of course the twelve tones of the Western chromatic scale.

[13] Perfect pitch is *not* an ability for fine tonal discrimination; rather it is an ability for remembering tones. See Sloboda (1985) Ch. 5.4.1.

call 'tonal relations'). These relations between musical notes form a hierarchy of more- to less-stable notes. The most stable notes are the tonic, the dominant and the mediant; the least stable diatonic notes are the subtonic, the sub-dominant and the supertonic. A note *x* sounds to be the tonic when it is heard as being the most stable tone; alternatively, the same note *x* will sound to be the dominant when it sounds like it ought to resolve to the tonic in a certain way; and so on. And what is important for us is that hearing a note as being the tonic has a different phenomenal quality from hearing the same note as being the dominant.

Consider this case.[14] In the context of the key of C-major, C sounds to be most stable. A natural melodic progression would be for C to follow B, as in Figure 1.1 below. In the key of C, the C is the tonic (*do*) and B is the subtonic (*ti*).

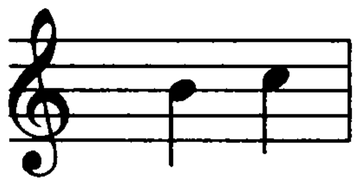

Figure 1.1

However, in other contexts this sequence would sound to be less stable, such as in a G-major tonal context where the more natural resolution is just the reverse. In G-major, the note C has a natural tendency to resolve to B, as in the IV-I resolution (Figure 1.2). In this tonal context, C would be the sub-dominant of G-major (*fa*) and B would be the mediant (*mi*).

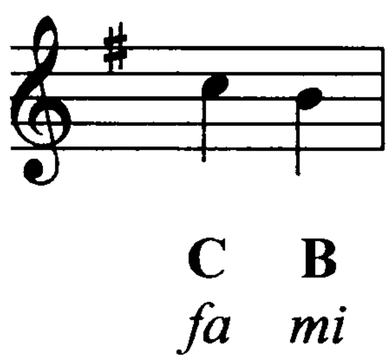

Figure 1.2

Two important points: first, this 'sounding to be most stable' is not something that the note C has just by virtue of its being that frequency. The note C corresponds roughly to 523 hertz (Hz). If that were the case, then it should not matter what tonal context 523Hz appeared in, which it most clearly does. Second, the same notes—B and C—can sound to have different harmonic functions in

different context, and this difference in harmonic function is evident in the phenomenology of the auditory experience. In the C-major context, B is a very unstable note, but in G-major it is highly stable—it sounds more resolved.

This way that musical experience sounds to a listener—its consonance and dissonance—is just what DeBellis is appealing to when he claims that it is the phenomenology of the perceptual experience that holds in common between trained and untrained listeners. A listener hears the C-B resolution in Figure 1.2 to sound consonant, and having that experience is just all there is to understanding that musical phrase.

1.3 *The Plan of this Dissertation*

Here is how I intend to pursue my question. As this dissertation is mainly concerned with the contents of perceptual experience, it would be helpful to know what is meant by claiming that perceptual experience has content in the first place. In Chapter Two I will examine the basic tenets of the intentional theory of perception (which is sometimes called the representational theory of perception). My treatment of this will be somewhat general and uncritical as I only wish to set the stage for DeBellis' intentional theory of musical perception. It would not be my place here to question whether this is the most appropriate theory of perception to adopt. Rather I would like to grant DeBellis as much as is reasonable so that I might demonstrate that, on his own terms, his support of the phenomenological claim cannot work.

In Chapter Three I will introduce DeBellis' intentional theory of musical perception. I will mainly be concerned with explaining how musical experience has contents on DeBellis' view. On his view, the phenomenal character of experience can entirely be captured by the intentional contents of experience. In Chapter Four I will explain how DeBellis argues for this strong version of intentionalism.

Chapters Five and Six are concerned with the notion of nonconceptual content. In Chapter Five I explain what concepts and contents are taken to be under the intentional theory of perception and explain how contents can be nonconceptual;

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[14] For more on the role of context in the representation of musical pitch, see Krumhansl (1979).

and in Chapter Six I offer a constraint on nonconceptual contents. The argument for the Mind-Independence Constraint in Chapter Six will be central both to my attack on DeBellis' claim that the contents of musical experience are nonconceptual and on my claim that the phenomenology of perceptual experience is not available through naïve perception. The Mind-Independence Constraint claims that for some perceptual content to be nonconceptual, it must be the case that the property or feature that this content represents must be appropriately mind-independent. Chapter Six will be devoted to explaining what being 'appropriately mind-independent' would amount to.

My claim will be that the contents of musical experience cannot be nonconceptual because musical properties are not mind-independent. That this is the case can be shown by examining the empirical evidence on the perception and cognition of musical pitch (tonality). In Chapter Seven I will review that evidence. However the empirical evidence may admit both a strong and weak interpretation. On the strong interpretation, the psychological abilities required for the representation of musical pitch are conceptual abilities; on the weak interpretation they are not, however the contents of musical experience are still mind-dependent in a way that would threaten the phenomenological claim.

I will then apply these claims to DeBellis' arguments for nonconceptual content in Chapters Eight and Nine. DeBellis offers a weak and strong argument for nonconceptual content—in Chapter Eight I will explain that the weak argument does not work if we accept the strong interpretation of the empirical evidence. DeBellis' strong argument for nonconceptual content is independent of his weak argument, and can be shown not to work on grounds that are independent of the empirical evidence. I will demonstrate this in Chapter Nine.

At this point in my dissertation, my claims about the contents of musical experience will be mostly negative: the contents of musical experience do not represent mind-independent properties of the external world. If this is true, then it would be of interest to know how the property of musical pitch is represented in perceptual experience. I will address this in Chapter Ten.

I will be arguing that the contents of musical experience are highly mind-dependent, which is admittedly a very surprising claim to make considering how widely accepted the notion of nonconceptual content is in the case of visual perception. I do not want to leave the reader with the impression that musical

experience is a strange anomaly. That the contents of experience are mind-dependent is not a unique feature of musical experience. There are other auditory experiences of a non-musical kind that are mind-dependent though for different reasons. In Chapter Eleven I will demonstrate one such case: the auditory representation of spatiality. Auditory experience often seems to have a spatial component—we often hear things as being on the left, or on the right, or above us, and so on. Spatiality in auditory experience is an interesting case because it would appear to be as primitive and pre-conceptual to the contents of our experience as one would theoretically like. However, I will argue that spatiality enters into the contents of our auditory experience through a complex system of judgments and recognitional capacities such that we would not be willing to describe *the property* of spatiality as a mind-independent feature of the external world. Spatiality in auditory experience is not a primary quality—the question is whether it is a secondary or tertiary quality. I will argue for the latter.

Finally, in Chapter Twelve I will return to the issue of musical understanding and state my conclusions. I will recap on how it is that the threat to DeBellis' nonconceptual strategy for the contents of music perception causes trouble for the phenomenological claim on both the strong and weak interpretations. If these conclusions are correct, then the problem of musical understanding seems to be thrown into crisis. If musical understanding cannot be based on the phenomenology of musical experience, then what can it be based on? I will argue that the debate over musical understanding can be saved from this crisis provided that we are willing to give up one of two desiderata. The problem of musical understanding arises because of these two desiderata: (1) that there is a correct way to understand a piece of music, and (2) that untrained listeners are at no disadvantage to trained listeners to correctly understand a piece of music. Clearly, if my attack on the phenomenological claim is correct, then one of these two desiderata cannot be met. Either (2) must be rejected, meaning that untrained listeners are at a disadvantage over trained listeners to correctly understand a piece of music, in which case untrained listeners cannot be attributed understanding; or (1) must be rejected, meaning that there can be no single correct understanding to be had. Rejecting one of these two desiderata would remove the crisis; however neither of these options is immediately appealing.

Finally, I would like to offer an apology to the reader as throughout this

dissertation there will be some extended discussion of key concepts in music theory. I have attempted to write these sections in such a way that should be suitable for a reader with limited knowledge of music theory; however I cannot be sure that I have not assumed too much, or too little. In addition, I must also apologise to the reader who does know a good deal of music theory, as they will inevitably find my descriptions of these musical concepts to be tedious. I can only apologise to readers in both camps and ask for your patience.

CHAPTER TWO:

THE INTENTIONAL THEORY OF PERCEPTION

DeBellis begins his book with the claim that 'a hearing ascription [an attribution of a certain way in which a listener hears something] attributes a state with representational content, a state that represents a passage of music as being a certain way.'[1] Before we examine what hearing ascriptions are, I should say briefly what DeBellis means by claiming that representational states have contents. What DeBellis has in mind is a version of the *intentional theory of perception*, a theory that claims that perceptual states represent the world as being a certain way and that these contents are assessable as being either true or false. It should be kept in mind, however, that nowhere to my knowledge does DeBellis explicitly argue in favour of the intentional theory over any other theory of perception.[2] It is therefore difficult to know which version of the theory he is in favour of. DeBellis draws inspiration for his views on mind, perception and perceptual contents from Lewis, Armstrong, and Peacocke—he follows Lewis in defining properties as functions from possible worlds to sets of objects,[3] Armstrong in defining concepts as capacities for thought,[4] and sees his account of the contents of musical experience as being supplemental to Peacocke's theory of nonconceptual contents.[5] While the views of these philosophers are not incompatible—indeed, the view that DeBellis arrives at through cherry picking their views is plausible enough—the variety of DeBellis' sources does make it difficult to speculate on those issues that he does not explicitly argue for, like his motivation for accepting the intentional theory of perception. All that we get from DeBellis on theories of perception is the claim that perceptual states have a representational content (quoted above). He offers no further

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1 DeBellis (1995): 1.

2 In his (1991) he does not compare the intentional theory to any other theory of perception; rather his concern there is to show how a strong intentionalist might account for the phenomenology of musical experience. The nearest DeBellis comes to defending intentionalism against any other rival theory of perception is in his (1995): 24. There he states that the intentional theory accommodates our intuition that the phenomenology of our musical experience is directly related to the music's being a certain way; the intentional theory provides us with a theoretical means for individuating and identifying hearing ascriptions; and finally experience and belief both have truth assessable contents on the intentional theory. Whether or not these are good reasons to hold an intentionalist theory of perceptual experience, these reasons are terribly insufficient to ward off other theories of perception.

3 Ibid.: 30-31.

4 Ibid.: 32.

5 Ibid.: see especially §§2.7 and 3.5.

support for this claim.

What DeBellis does explicitly argue for, however, is a strong version of the intentional theory—he argues that the phenomenal quality of perceptual experience can be fully accounted for by specifying the perceptual state's representational content. In this chapter I will quickly explain what the intentional theory is and what problem it is meant to solve. I will leave out some of the finer details of this theory, opting instead to offer a general overview of its central claims. In particular, I am not here concerned to compare this to other theories of perception—disjunctivism or naïve realism for instance. It is not my concern here whether the intentional theory works or not, or whether the perception of music might be better served by some other theory. This is the theory that DeBellis endorses, and I wish to grant DeBellis this much in order to test his account of the contents of musical experience on his own terms. This chapter will be largely exegetical and uncritical.

2.1 *The Problem of Perception*

The intentional theory of perception (sometimes called either *intentionalism* or the *representational theory*[6]) is one answer to what is often called the 'problem of perception', which, as Tim Crane puts it, is due to a tension between two seemingly intuitive thoughts: the thought that perception puts us in immediate contact with the objects and properties that we perceive, and the thought that if one perceives something as being, say, red, then there must be something perceptually present to one that actually is red.[7] These two thoughts taken together leave us with the question, when one perceives something as being red, just what is it that is perceptually present that is red? To offer a contrast with the intentional theory, one seemingly intuitive and straightforward answer to this question would be to say that what is made present in perceptual experience is the actual external object of one's perceptual awareness. This

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[6] Confusingly, Tye (1995) uses the term 'representationalism' to refer to the theory of mind which states that mental states exhibit intentionality while Jackson (1977) uses this term to refer to his theory of perception, which states that the object of perceptual experience is a mental intermediary—Jackson's is a version of the sense-data theory. In order to avoid confusion, I will use *intentionalism* to refer to theories like Tye's (and Crane's), and *sense-data theory* to refer to theories like Jackson's. However, in my usage the terms 'intentional contents' and 'intentional properties' will be used interchangeably with 'representational contents' and 'representational properties' respectively.

[7] Crane (2001): §40. While Crane is a leading defender of the intentional theory, DeBellis has strong disagreements with Crane on the notion of perceptual contents and on nonconceptual contents. Cf. DeBellis (1995), §3.5 with Crane (1992b).

is a rather unsophisticated form of the view known as *Naïve Realism*—the common sense intuition that perception puts us in direct perceptual contact with the objects and properties of the external world where those objects and properties just are as they appear in perceptual experience.

However, the problem with this intuitive thought is that, in the case where when one suffers an hallucinatory experience, then there is no object that one is in direct perceptual contact with, or when one is subject to some illusion, then the properties that one seems to perceive are not really there. And yet, when one hallucinates, say, that a red ball is on the table, it is plausible that one's experience may be phenomenally indistinguishable from the case where one correctly perceives that a red ball is on the table. In such cases, a naïve view of perception would be at a lost to explain the phenomenal similarity.

Many philosophers once thought that when one hallucinates that a red ball is on the table, then one must be in direct perceptual acquaintance with some object or entity that is red in order for hallucinatory experience to have an indistinguishable phenomenal feel from veridical experience. The thought was that there must be something that a subject is in direct acquaintance with that explains the representational and phenomenal character of the perceptual experience. The answer that was proposed was that, in the cases of hallucination and illusion, the object of acquaintance must be some mental entity that accounts for the representational and phenomenal character of the perceptual experience. This mental entity is not an external object in the sense that it is an object that has an independent existence from its being perceived, rather this object could be thought of as a *sense-datum*—a non-physical mental object that instantiates the property *red* which is itself the object that one is directly in contact with in perceptual experience. This is the view, introduced by G. E. Moore, as the *Sense-Data Theory*, or alternatively, *Indirect Realism*.[8]

Notice how the sense-data theory may follow from the two thoughts given above, that perceptual experience puts us in direct contact with objects and properties and there must be some object that instantiates the properties that we perceive, with the addition of a third thought—that if two mental states are phenomenologically indistinguishable then they must be of the same kind, which could be called the *sameness of kind*

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[8] This is the view defended at some time and in various forms by Ayer (1936), (1940), (1973); Jackson (1977); Moore (1905) and (1965); Robinson (1994) and at one time Russell (1912).

principle[9]—then a logical inference to make is to think that in perceptual experience all that one is in contact with are sense-data, both in the hallucinatory case and in the veridical case. If this third thought is accepted, then it seems that, in perceptual experience, we are never in contact with the objects and properties of the external world, rather we are only ever in contact with an intermediary—a sense-datum—which for Russell were private internal mental entities,[10] while for Ayer these were neither mental nor physical.[11] On either view, sense-data are non-physical objects of immediate sensation.

The key to the problem of perception, then, is to find a way of freeing ourselves from the unintuitive Sense-Data Theory while taking into consideration the problem of hallucinations. There have been many attempts at solving the problem—one could question whether hallucinations can ever be phenomenally indistinguishable from veridical perception; one could reject the sameness of kind principle; or one could reject either of the two thoughts that got this problem started in the first place. While much could be said about the problem of perception, I will focus on just one kind of response to the problem, namely the *Intentional theory*, and will pay specific attention to how the notion of nonconceptual content is meant to fit in with this view. The reader should keep in mind, however, that the notion of nonconceptual content is by no means exclusive to intentionalism. Other theories of mind posit some type of content that is also often described as nonconceptual.[12] It is not my aim here to examine all possible applications of nonconceptual content, but rather to examine it in relation to the intentional theory of mind.

2.2 *Intentionalism as an Answer to the Problem of Perception*

Intentionalism as a theory of mind argues that what is characteristic of mental states is

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[9] This is a move that many theorists make in defending the sense-data theory. See for instance Robinson (1994): 32; and for discussion see Crane (2001): §41; Martin (2002); Smith (2002): Ch. 1.

[10] Russell (1912).

[11] Ayer (1936), (1940) and (1973).

that they are about something, that they exhibit intentionality. According to the intentional theory of mind, mental states have contents that represent objects, properties or states of affairs.[13] When one thinks 'that *p*', one is in a particular mental state, namely a mental state that *represents* that *p*. Representations are mental states that have a particular content. Perceptual states—being one kind of mental state—can similarly be described as having contents in that they represent the external world as being some way or other when the contents of perceptual experience are appropriately related to the objects of the external world in the right way, however that way might be defined.[14] So, when an intentionalist talks of a perceptual state's representing that there is a red ball on the table, this means that a subject is in a particular mental state having a particular content, namely *perceiving that there is a red ball on the table*. Mental states—like believing, hoping, desiring, perceiving—have content such that one might believe that *p*, hope that *p*, desire that *p*, or perceive that *p*. If one believes that *p* and also hopes that *p*, then these two mental states have something in common—they are both mental states related to the content *p*—while also differing in their attitude—one is a belief-state the other is a hope-state. Mental states are then to be individuated in terms of what they are about, or what their content is, in addition to the particular attitude under which this content is thought. These contents can be called *representational contents* or *intentional contents*. I will use these terms interchangeably. Similarly, these mental contents can be described as having properties that can either be referred to as *representational properties* or *intentional properties*.

A standard view of the contents of intentional states is to hold that these are propositional attitudes—that all mental states can be analysed in terms of their possessing a proposition that is assessable as either true or false. In his (1991), DeBellis says, 'the content of an experience is a proposition—*that* such-and-such is the case—

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[12] For instance, it is not clear to me that Bermúdez idea of nonconceptual content is strictly like the sort of view I have in mind. Specifically, Bermúdez seems to believe that, in addition to some perceptual states, sensations like pains, tickles or indigestion (his example) would also have a nonconceptual content. It is, however, questionable whether anything is represented by pains, and without representation it is not clear to me that the distinction between conceptual and nonconceptual actually means anything. It would just be trivially true that sensations are nonconceptual—that one needn't possess the concept *pain in my foot* in order to feel a pain in one's foot. In this case, it seems that Bermúdez might be using the notion of nonconceptual content to cover a much wider range of mental states than I would be willing to apply this notion to.

[13] Crane (2001), Tye (1995). For the notion of representation, see also Peacocke (1983).

[14] See Crane (2006) over whether there is a perceptual relation between external objects of perceptual experience and perceptual states.

and that an experience is veridical just in case its content is a true proposition'.[15] However closer examination will reveal instances where the propositional attitude thesis fails. An instance where this works is offered above: if a subject sees a red ball on the table, then the content of this mental state may be the proposition 'there is a red ball on the table'. A sentence that ascribes a content to a subject typically is of the form '*S* ___ that *p*' where '*S*' stands for the subject, '*p*' stands for the proposition, and the gap '___' stands for a psychological verb such as 'sees' or 'hopes' or 'believes'. Instances where this might fail would be those instances where the gap is filled by an 'intentional transitive' verb—verbs such as 'fear', or 'seek', or 'want'. If I want a red ball, then the content of my mental state would be described as 'Chris wants a red ball'. In this content ascription, 'Chris' is the subject, 'wants' is the psychological verb, however 'a red ball' is not a proposition—that is, it is not a sentence that is assessable as either being true or false, which propositions must be. The propositional attitude thesis is questionable even in the case of a content ascription such as 'Chris sees that a red ball is on the table', for we needn't analyse this ascription in propositional terms. The ascription 'Chris sees a red ball on the table' cuts out the proposition—it cuts out the need to use a *that*-sentence—and yet this seems to adequately describe the same type of mental state. The claim that all mental states are describable in propositional terms is controversial, however for the remainder of my dissertation I will assume that they are. I do this only for ease of exposition. Very little of what I will be arguing for hangs on whether or not the propositional attitude thesis is true. If the propositional attitude thesis is false, then I take it that the content ascriptions in question can easily be reformulated in non-propositional terms.[16]

Intentionalism seeks to address the problem of perception by arguing that what one is directly acquainted with in perceptual experience is the external world through one's mental representation of it, and that such representations do not instantiate properties, they simply represent them. When one perceives that there is a red ball on the table (in a veridical case) there is a causal, physiological process the result of which being that one is in a mental state that represents that a red ball is on the table. Intentionalism denies the second thought of the problematic pair, that when one perceives that *x* is red then there must be some object that is present to one in perception that is red—all that would be required is that there is a representation. The intentionalist claims that one

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[15] DeBellis (1991): 304.

[16] For a defence of intensional transitive verbs, see Larson (2001).

might have a mental representation as of some object's being red even though there is no such object. Thus, the intentionalist denies that perception is a relation between a perceiver and some object; as Crane puts it, 'perception is an intentional state, a relation to an intentional content'.[17] Thus, representational states can have contents regardless of whether the state is veridical or not; the proximal object of experience is a representational state; and an experience is an act of perceiving if that state is caused by a distal object in the right way. Whether or not intentionalism does offer a plausible solution to the problem of perception is not my concern here. I only review this theory as the background to DeBellis' intentional theory of music perception, which we will examine in the next chapter.

2.3 *Contents*

The intentional theory of mind holds that mental states represent the world—they have contents. Contents represent something as being the case. A paradigmatic example of a mental state with content is a belief state. Beliefs have contents—they are about something. The content of a belief is that which typically follows a *that clause*. If Smith believes that *p*, then the content of Smith's belief is *p*. Contents can typically be expressed as sentences. If *p* is the sentence 'Snow is white', then the claim that 'Smith believes that *p*' is the claim that 'Smith believes that snow is white'. Belief states are semantically evaluable in that they refer to objects, properties or states of affairs in the world, and knowing what it is that they refer to gives a way of knowing in principle how to judge the semantic value of the belief.

Belief ascriptions are also assessable as true or false. The claim that 'Smith believes that snow is white' is true just in case Smith does believe that snow is white. Thus one can give a third-person account of the contents of a subject's beliefs by ascribing to that subject a belief with a certain content. These are called *belief ascriptions*. The statement claiming that 'Smith believes that snow is white' is a belief ascription, and it can be assessed as being either true or false depending on whether or not Smith actually does believe that snow is white.

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[17] Crane (2001): 137. See also Crane (2006). Crane's his account of perceptual contents follows from his commitments to internalism for mental contents. Thus, it is partly because of his internalist leanings that he denies that there is a relation between perceptual contents and external objects. However this is not necessary of all intentionalist theories of perception. Arguably Tye's version of intentionalism is not committed to internalism, as what gives perceptual experience its particular phenomenal quality on Tye's

In describing the content of a subject's belief state, it is sometimes possible to ascribe to a subject a belief that they themselves may not recognise as their own belief.[18] For instance, we ascribe beliefs *de re* to a subject where some term of the belief statement utilises a concept that the subject does not possess, as in the case where Smith, looking up at the stars, points out one star and says, 'That's Hesperus'. Supposing that Smith does not know that the name 'Hesperus' refers to the planet Venus, we might describe Smith's belief state by saying that 'Smith beliefs that *x* is Venus'. This would be a true belief ascription at the level of the object that Smith refers to—at the level of reference—but this belief statement fails to capture exactly the sense in which Smith picks out the planet Venus. If, on the other hand, we are concerned to capture the subject's belief state in those terms which the subject themselves are thinking, then these are belief statements *de dicto*. *De dicto* ascriptions are concerned to offer a description of a subject's belief state at the level of sense for that subject.[19]

There are many positions one can take regarding what contents are—I will review these quickly and then offer DeBellis' view.[20] Some theorists defend a Russellian theory of contents whereby contents are constituted by just those very objects and properties that one is in direct perceptual acquaintance with.[21] On this view, when a subject sees a red ball, their experience represents a structured proposition that has as its constituents the object itself and the property of being a red ball. A weaker version of the Russellian view holds that contents do not represent objects themselves but rather they represent existentially quantified properties.[22] Other theorists offer a Fregean theory of contents. On this view contents are composed of modes of presentation of objects and properties rather than the objects and properties themselves. This view is motivated by the thought that objects and properties can be represented by various modes of presentation. In order to get the sense of these representational states right, some theorists posit modes of presentation as the constituents of perceptual contents. A third view would be to claim that the contents of experience are sets of possible worlds. On this view contents represent those possible worlds in which something appears to be the case. If one sees a red ball, then the contents of experience represent those possible

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view is the relation a perceiver stands in to external objects and properties. See Tye (1995).

[18] The following point is made in Crane (2001): §35.

[19] Cf. Crane (2001): §35.

[20] For an overview, see Chalmers (2004), Siegal (2005).

[21] Russell (1905).

[22] Tye (1995). For general discussion, see Chalmers (2004).

worlds in which a red ball (or perhaps *that* very red ball) is before the perceiver.[23]

DeBellis rejects the possible worlds view of contents, arguing that the contents of musical experience are more fine-grained than a possible worlds view of contents would allow.[24] For instance, all those worlds in which an equilateral triangle is perceived by a subject are just those worlds in which an equiangular triangle is perceived by a subject. However, a subject might represent the triangle *as* an equilateral triangle—that is, the subject might believe of the triangle that it has equal sides—and this is a different sort of content from that where a subject represents the triangle *as* an equiangular triangle. If contents are sets of possible worlds, then the content would not be fine-grained enough to distinguish between these representational states. A more fine-grained account of contents would be the Fregean view, where the same object may be represented under different modes of presentation, where these modes of presentation are the means by which contents could be distinguished.

DeBellis defines contents as 'an object of belief' and he says that there are 'different levels of content, corresponding to different kinds of things one may take a belief to be directed toward'.[25] By 'different levels' of content, it seems that DeBellis has in mind a distinction between the contents of different propositional attitudes. When DeBellis discusses the contents of belief states, he seems to be employing a Fregean theory of content,[26] though in other places he talks about contents representing objects and properties in the form of a structured proposition suggesting a more Russellian account of contents.[27] The contents of perceptual states are the properties and objects that the subject is perceptually related to.

2.4 *Belief, Belief Ascription and Contents*

I will briefly examine some further theoretic constraints and background concerns that DeBellis places on his theory of perception and on perceptual contents. DeBellis is mainly concerned with the relation between perception and belief—hearing that G is the dominant of C-major and believing that G is the dominant of C-major. Taking on

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[23] This view is associated with Lewis (1986) and Stalnaker (1984).
[24] DeBellis (1995): 53-54; see also his (1991): §3.
[25] DeBellis (1995): 32.
[26] Ibid.: 30-32.
[27] (1991): 315.

Armstrong's claim that perception is a matter of acquiring beliefs,[28] he says it is 'at least plausible to suppose that hearing ascriptions ascribe beliefs acquired in musical perception'.[29] As a starting point, DeBellis considers what he calls the *belief thesis*: 'that musical hearing is perceptual belief and hearing ascriptions are ascriptions of perceptual belief.... Hearing ascription is, on this hypothesis, not just analogous to belief ascription; it is one kind of belief ascription.'[30] DeBellis offers the belief thesis as one way of understanding how perception relates to beliefs, however this thesis will be rejected when he offers his strong argument for nonconceptual content. I will return to this in Chapter Nine. We should now turn to what it is on DeBellis' account to be ascribed a belief. What follows will be a summary of DeBellis' view of beliefs and belief ascriptions as presented in §2.3 of his book.

Belief is a relation to information; it is one psychological attitude among many that one can take towards some information, where 'information' is characterised in Fregean terms of what a listener is willing to assert or deny. Some information is understood if a listener is able to 'grasp' it, which I understand DeBellis as meaning that a listener grasps information when they are able to do something with it within some appropriate range of responses, which would be asserting or denying sentences or beliefs that express that information.[31] Information is presented in the form of sentences—presumably as Fregean thoughts—and sentences are composed of modes of presentation—roughly Fregean senses; modes of presentation are ways of thinking about some object or property. *Content* is an object of belief, which can be an information-bearing sentence or, in the case of perception, the objects and properties in the world themselves;[32] a *concept* is, as DeBellis puts it, 'a certain psychological capacity, an ability to have beliefs (and thoughts generally) in which one grasps a particular mode of presentation.'[33]

If I have understood DeBellis correctly on what it is to grasp some information—namely that a listener knows what to do with some piece of information within some appropriate range of responses, like asserting or denying sentences expressing this content—then, following this, I take it that a concept for DeBellis generally is the

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[28] Armstrong (1961). It will not be my concern here to examine the plausibility of this view. I am willing to grant its plausibility in order to move on to the more substantial claims made by DeBellis.
[29] DeBellis (1995): 26.
[30] Ibid.
[31] Ibid.: 29-30.
[32] This point is not made clearly in DeBellis' account but is implied by his discussion of mode of presentation-preserving ascriptions, which I will turn to shortly.

possession of an ability to do something with a piece of information, or that a concept is that mode of presentation that a listener exercises when they grasp some piece of information. Notice that DeBellis' definition of a concept is formulated in terms of the psychological capacities that a listener might exercise in thought. I will discuss this in more detail in Chapter Five.

Next, a *belief ascription* is a claim that a listener is in a belief-state of a certain type: 'S believes that *p*' is a belief ascription. Belief ascriptions are true if S really does believe *p*. DeBellis claims that there are two sorts of belief ascriptions, those that preserve the mode of presentation and those that do not. An ascription is 'mode-of-presentation-preserving' (or 'm.p.-preserving') if one must have the belief expressed by the content sentence in order to satisfy the ascription, and ascriptions where the listener does not possess the belief are 'non-m.p.-preserving'. Such would be the case for the ascription, e.g., that 'Sam believes that Quine is wise', where to ascribe this belief to Sam requires that he possess a belief that contains the content 'Quine is wise' and that he believes it (where, again, believing something is standing in a certain mental attitude toward some content).[34] The ascription 'Sam believes that Quine is wise' captures the sense of the content of Sam's belief, so this belief ascription preserves the mode of presentation.

By contrast non-m.p.-preserving belief ascriptions need not capture the sense in which a listener actually thinks some content. Imagine a listener who, when looking up at the sky at night, thinks 'Hesperus is shining'. We could, on this basis, claim that 'S believes that Venus is shining', which would be a true belief ascription at the non-m.p.-preserving level, as this would be a true ascription at the level of the referent of the listener's belief (*de re*), though it would be a false ascription at the level of thought (*de dicto*). The listener does not think 'Venus is shining'—that is, they do not possess a belief with the content that 'Venus is shining'. Furthermore, if we were to ask of the subject, 'Do you believe that Venus is shining', it would be reasonable for them deny this, or to be in doubt (if they do not know that Hesperus refers to the planet Venus). For belief ascriptions that are m.p.-preserving to be true is for them to be correct descriptions of the listener's beliefs *de dicto*, as well as *de re*, while non-m.p.-preserving ascriptions needn't be true *de dicto* for them to be true *de re*. A listener may

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[33] Ibid.: 32.
[34] This is DeBellis' example, (1995): 32.

therefore be in a non-m.p.-preserving belief-state and yet not be disposed to either assert or deny sentences that contain the content of their belief.

What is of interest to DeBellis is the case of perceptual beliefs. On a weak interpretation of DeBellis' view, a listener might be ascribed a perceptual state representing that *x* is red even if the listener does not possess the belief that '*x* is red', which is to say that they either cannot possess such a belief because they lack just that very concept (modes of presentation) required of such a content sentence or it could mean that the subject does not presently happen to believe that '*x* is red' though they could believe this as they do possess the required concepts.[35] A strong interpretation of his view, on the other hand, would hold that a listener might be ascribed this perceptual content without possessing the cognitive capacity to possess any of the relevant concepts.

In the case of perceptual beliefs, which DeBellis thinks are non-m.p.-preserving beliefs generally, DeBellis describes the relation of the belief ascription to the content being ascribed as 'transparent'. What he calls 'referentially transparent' ascriptions—those typical of the non-m.p.-preserving cases—specify their content at the level of 'an ordinary object (person, planet) or, more generally, an intension.'[36] Thus in the case of perception, perception is a relation to informational content at the level of the objects and properties that are actually perceived as holding in the external world.

So, in the case of musical perception, DeBellis argues that musical ascriptions are non-m.p.-preserving—that is, that the listener need not possess that belief or those very modes of presentation (presumably music-theoretic concepts) in order to be ascribed perceptual beliefs with musical contents. We, from a third-person point of view, might describe a listener's perceptual experience as representing that G is the dominant of C-major even though the listener is not themselves in a belief-state having this content, perhaps because the listener lacks that very concept, or they do not happen to be presenting thinking this, or they are incapable of possessing any such concept.

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[35] It should be noted that the second of these alternatives is very close to the notion of Evans' belief-independence—that a subject's holding some belief (or not) does not interfere with their being in a perceptual state with a certain content.

[36] Ibid.: 34. Also, DeBellis is using Quine's notion of referentially transparent ascriptions. See Quine (1956 [1966]): Ch. 15. See also Quine (1953), Ch. 8.

2.5 *Strong and Weak Intentionalism*

Finally, there is a further distinction to consider regarding the strength of a theorist's commitment to intentionalism. A subject can believe 'that *p*' and a subject can perceive 'that *p*', and while we would think that these are two mental states that represent the same intentional content—'that *p*'—there are clearly many differences between *believing* 'that *p*' and *perceiving* 'that *p*', not least of which being that these two mental state will have very different phenomenal qualities. Believing that *p*, where *p* is the proposition that there is a red ball on the table, is phenomenally quite different from seeing that *p*—it is a very different sort of experience. Perceiving that *p* is accompanied by a certain phenomenal feel—it feels a certain way to perceive, say, that a red ball is on the table—and this feels very different from believing that *p*. Belief-states and perceptual-states are in this respect thought to differ in respect to their phenomenology. The question, then, is how we are to describe this difference.

There seem to be at least two possible ways for an intentionalist to go about this. First, one could argue that there is more to the phenomenology of perceptual experience than can be represented intentionally. The thought here is that there are two kinds of properties that constitute perceptual experience, those that contribute to the intentional content of the perceptual state, called *intentional properties*, and those that contribute to the phenomenal feel of the perceptual state, called either *phenomenal properties* or *sensational properties* or *qualia*.[37] The phenomenological difference between belief and perception, on this view, would be accounted for by saying that both the belief state and the perceptual state have the same intentional content, but that the perceptual state has an additional property that contributes to the phenomenology of the perceptual experience. Phenomenal properties are not intentional properties—they lack intentionality—rather they are higher-order properties of mental states.[38] It is characteristic of this view to claim that the phenomenal properties of experience cannot be reduced to the intentional properties, and that the contents of a belief state cannot capture the phenomenal quality of experience. Remember, beliefs are thought to be propositional, so the idea here is that the propositional content of beliefs cannot adequately capture the phenomenal feel of perceptual experience.

The above view could be described as *weak intentionalism*: all mental states are

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[37] Peacocke (1983).
[38] Crane (2001): §25.

intentional, though some mental states also possess phenomenal properties.[39] Thus, phenomenal properties contribute to the way in which perceptual experience feels, but it does not contribute to what perceptual experience represents. On this view, it would be possible for two mental states to have the same intentional content and yet be phenomenally distinct. Peacocke once defended a form of this when he argued that the difference between perceiving the dots in Figure 2 (below) as being arranged in columns rather than as being arranged in rows is a difference in the phenomenal feel of each representational state.[40]

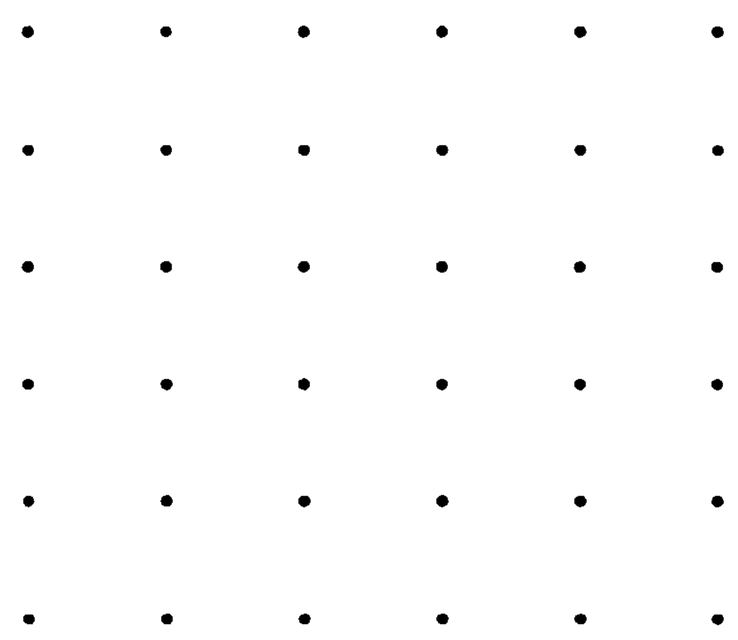

Figure 2

The argument for weak intentionalism is that in either state what is represented is exactly the same pattern of dots—both states have the same intentional content—though perceiving the alignment of the dots as being one way is phenomenally distinct from perceiving the alignment of dots as being the other way. And, it is argued, this phenomenal distinction is not due to any distinction of the intentionality of the two mental states, rather all that has changed is the way in which one experiences the arrangement of the dots as being, and this is a difference in the phenomenal character of the representational state.

Opposed to this is what could be called *strong intentionalism*. This is the view that all mental states have intentionality and that all difference between any two mental

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[39] I am following Crane on the use of the terms weak intentionalism and strong intentionalism.

[40] Peacocke (1983): Ch. 1. Peacocke's views have changed since then. I presume that he would now regard the difference between seeing the dots as organised into columns rather than as rows as a difference in the representation of protopropositional contents. Also see his (1992a). For criticisms of Peacocke's view, see DeBellis (1991) and Tye (1992).

states is due to a difference in their intentional content.[41] Considering Figure 2 again, the difference between seeing the dots as being arranged in columns and seeing the dots as being arranged in rows would, on this view, amount to a difference in what is seen—that is, a difference in what is represented. These two states represent different things: one represents an arrangement dots in columns, the other represents an arrangement of dots in rows. The difference between these mental states, it is argued, is due to a difference in their intentional contents. Thus, there is no need to ascribe different phenomenal properties to each mental state as they would be intentionally distinct mental states. The task for any theorist who defends a strong account of intentionalism is to show how all phenomenal differences between any two mental states can always be reduced to a difference in their intentional content.

2.6 *Intentionalism and Musical Experience*

The intentional theory of perception is the starting point for DeBellis' theory of the contents of musical experience. While my explication of this theory has been rather quick here, further details will be examined in subsequent chapters. Before concluding this chapter I will examine how the intentional theory of perception is thought by DeBellis to offer a means of explaining musical understanding.

DeBellis' thought is that the contents of perceptual experience give us a means of characterising the way in which a listener's experience of some music is for them (as we will see in Chapter Four, DeBellis defends a version of the strong intentionalist view). Musical experience has a certain phenomenal quality. That phenomenal quality can be accounted for by attributing to the listener a certain perceptual experience with intentional content. These contents are veridical if and only if the music is the way that the content represents it as being. Understanding music, for DeBellis, is just hearing the music as being a certain way, which would involve hearing certain features of the melody, harmony and rhythm and perhaps hearing large-scale relations between these. The contents of experience are assessable as true or false, so that it would be meaningful to ask of a listener whether the music really is the way in which their perceptual state represents the music as being. So all there is to understanding a piece of music is for a listener to be in a certain intentional state that has the right kind of content, where that

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[41] For defences of strong intentionalism, see Crane (2001): §25 and Tye (1992). I will review DeBellis' arguments for strong intentionalism regarding musical experience in Chapter Three.

content captures the way in which the music is. A listener who understands some piece of music is one who correctly represents it as being a certain way.

The intentional theory of perception gives DeBellis the means by which he might reasonably ask whether a listener hears the music correctly. The benefit of DeBellis' intentionalistic approach is possibility that the mysterious notion of musical understanding could be analysed in the relatively more familiar surroundings of a theory of intentional contents. In the next chapter I will review the way in which DeBellis uses the intentional theory regarding musical experience. The problem we will examine there will be what sort of musical properties are thought to be represented in perceptual experience and what the structure of contents that represent musical properties would look like.

CHAPTER THREE:

THE CONTENTS OF MUSICAL PERCEPTION

'What do we hear when we listen to music?' This, the opening question of DeBellis' book, we're told, is a question about what sort of psychological states can be ascribed to a listener when they listen to music. DeBellis' strategy is to analyse what it is to ascribe listeners with a certain musical experience in terms of how experiences of this sort are represented in the listener's perceptual awareness. DeBellis' holds an intentionalistic view of perceptual experience according to which, when a listener undergoes a musical experience, they can be attributed a certain psychological state with a representational content, called a 'hearing ascription',[1] which represents sound-events as being a certain way. This 'way' that auditory experience is represented as being could broadly be described as that way that is salient to the listener's experiencing the sounds *as* their being music: when a listener hears music, they hear the music as having many different auditory qualities; some of these qualities will have great musical significance and some will not. Examples of those auditory qualities that have musical significance would be the timbre, pitch and rhythm of the sound, while examples of those auditory qualities that have no specifically musical significance would be loudness (or intensity) and directionality (if it has any). DeBellis' primary concern is to explain how one's judgment and understanding of music is grounded in perceptual experience. Towards this end he offers an account of how one's experience of listening to music results in a perceptual state with representational content. In the previous chapter I briefly sketched the background of what I take DeBellis' theory of perception to be. In this chapter I will examine DeBellis' claim that musical experience has a representational content.

One difficulty that such a view must overcome is in explaining how it is that something as complex and seemingly ineffable as music could be represented in experience. Much of this is due to the theoretical difficulty of describing such contents—that is, it is one thing to claim that musical experience has a representational content and it is another thing to be able to identify what that content is. By contrast, visual experience is just as complex as musical experience, however our theoretical vocabulary for capturing the contents of visual experience is seemingly richer (if only

slightly) than our vocabulary for capturing the contents of musical experience. For example, if a listener sees a red ball on a table, we might be able to capture the content of this perceptual state by saying that the state represents that 'a red ball is on the table'—that is, the content of this perceptual state may be identified by the proposition that 'a red ball is on the table'. Granting that this proposition is rather coarse-grained, and certainly is infinitely more coarse-grained than the actual perceptual experience, the point is that we can at least begin to identify the contents of visual experience by offering propositions such as 'a red ball is on the table'.

What proposition could we offer to identify the contents of musical experience? Is the content of musical experience propositional at all? If we describe a subject's perceptual state by saying that 'S sees that *p*', where that subject sees that a red ball is on the table, '*p*' is replaced by the sentence 'a red ball is on the table'. But in the case where a subject hears, say, a perfect cadence in the key of G-major, then what fills in the '*p*' place? DeBellis' concern in his (1991) is to explain what the content of musical perception would look like, and this is what I will examine in this second exegetical chapter. The central point of this chapter will be to explain how DeBellis thinks that these musical qualities come to be represented in a listener's auditory experience. The idea that musical content is nonconceptual only makes sense if the contents of musical experience can fit the intentional theory of perception. In this chapter I will explain how a representational theory of perception can handle music. However, explaining DeBellis' claim will require much clarification of what sort of properties are thought to be represented in musical experience. In the next chapter I will present DeBellis' argument for a strong intentionalist account of musical experience.

3.1 *Properties of Musical Experience*

Understanding how the contents of musical experience relate to perception is particularly intriguing, at least in part because the auditory stimuli that a listener perceives is arguably much impoverished when compared to the range and richness of musical experience. In auditory experience we are presented with sounds that can be described in terms of their frequency, intensity and duration, but this is not all that musical experience amounts to. When listening to music, we hear melodies, rhythms,

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[1] DeBellis (1995): Ch. 1.

cadences, and resolutions; sometimes we might hear the music as representing the sound of a battle, or of traffic, or the engine of a train; and controversially we may even hear an expression of grief, or joy, or regret. It is strange that we should hear all of this, considering the poverty of the stimulus. It cannot be that there is something special about tones resonating at a certain frequency that causes one to hear regret, or the sound of battle. Interesting as this is, I will not linger here on how it is that a listener comes to hear the music as representing something or as expressing some emotion, because whatever it is to hear these things must be founded on a level of hearing that is more basic to musical experience, namely the hearing of specific musical qualities, like melody, harmony and rhythm. How does one come to hear *those* things given the poverty of the auditory stimulus?

It would be premature to attempt to answer this question here; rather I will return to this in Chapters Seven and Ten. For the moment, however, it would suffice to say that hearing a sound as having a melody is very different from simply hearing a sequence of sounds that alternate in pitch. Hearing a sequence of sounds that alternate in pitch is not the same as hearing a melody as, for one thing, a sequence of sounds that alternate in pitch need not sound resolved, or tense, or incomplete, while melodies typically do have these properties. Perhaps it would be objected that it is not the case that *all* melodies have these properties, nor do all non-musical sounds lack these properties. This may be granted, but the general point would remain: musical sounds typically possess certain properties that non-musical sounds do not, and we might apply certain evaluative terms to musical sounds that would appear awkward when applied to non-musical sounds. This distinction between musical and non-musical sounds is one that many in cognitive science have long argued for and some philosophers acknowledge as well.[2] Scruton, for instance, remarks in his (1983) that musical sounds are discontinuous with non-musical sounds—that is, that one cannot trace a genealogical relationship from non-musical sounds to musical ones within subjective experience. There is no vague area between musical and non-musical sounds. Scruton distinguishes between 'scientific understanding' and 'intentional understanding' where the former aims to describe the physical basis for auditory experience and the latter requires that the listener conceives their auditory experience in a certain way (in this case, a way that is salient to experiencing the sound as music). Scruton explains this by saying that a listener must

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[2] See, for instance, Helmholtz (1885), Krumhansl (1990) and Sloboda (1985).

extend certain concepts into their auditory experience by metaphorical transference.[3] I wish to take up the challenge of finding the distinction between musical and non-musical sounds in Chapter Seven but will do so without relying on any mysterious notions such as metaphorical transference. Rather I think a good psychological explanation has already been made available by cognitive science, but saying more about this here would be getting ahead of myself.

Our present concern is to explain how, on DeBellis' view, musical qualities such as melody, rhythm, and harmony come to be represented in perceptual experience. What I would like to start with is the observation that the claim that these musical qualities (melody, rhythm, harmony, etc.) are represented in experience rather than just the objective properties of auditory experience (frequency, intensity, duration) is a significantly weighty issue not explicitly argued for in DeBellis' account of hearing ascriptions. When a listener hears sounds as being music, they hear a sound as being a certain way, i.e. musically, but it seems to be DeBellis' assumption that hearing this musicality is just a constitutive part of auditory experience. Rather than make this assumption, the question we should be asking is, 'Are these musical properties perceptible properties like frequency, intensity and duration?' Clearly if perceptual experience is to have a specifically *musical* content, then the properties of melody, rhythm, harmony, etc. play some role in the contents of experience; however the musical properties cannot be reduced to the objective properties of auditory experience. I take it that this is not DeBellis' concern—he is not interested in how the physical stimulus that is presented in auditory experience comes to be represented as having certain musically salient qualities, rather he assumes that those qualities salient to the representation of music are presented in experience at the level of the perception of auditory events. Later in this dissertation, I will go on to argue that DeBellis' claim that musical experience has a nonconceptual content is false, and I think that the reason that DeBellis' claim fails is because he overlooks this problem of the poverty of the stimulus. But, again, I am jumping too far ahead.

What sort of musically salient qualities are represented in perceptual experience? What are musically salient qualities? In addition to the three basic objective qualities of sound—frequency, intensity and duration—the qualities that are salient to our

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[3] Scruton (1983). For criticism of this view, see also Budd (1985). Though, Budd also seems to acknowledge the distinction between hearing a sound as a musical event and hearing a sound as a non-musical event.

perception of music would include things such as rhythm, melodic dominance, harmonic function, and overall structural qualities, such as the structure of musical phrases, measures and movements and their relations to each other. It should be noticed that all of these qualities are *relations* between sounds. A melody is not simply a sequence of sounds that alternate in pitch; rather the distinct notes of a melody are heard as being related to each other in some way. Similarly, rhythm does not simply describe the temporal ordering of sounds, rather for a sequence of sounds to be a rhythm is for a listener to hear that particular relational quality holds between the sounds. If auditory experience is to have a specifically musical content, then it would not be enough for a listener to hear a series of auditory events having certain frequency, intensity and temporal properties; in addition, the listener must also hear certain relations holding between these events, relations that define some events as more dominant, or musically significant, than others.[4] To clarify what is meant here, I will say a bit more about what is meant by describing musical hearing as the hearing of certain relations.

The constituent elements of musical experience could be thought of as falling into two basic classes, (1) the purely objective auditory properties of frequency, intensity and duration, and (2) the particular sort of relations that hold between sound-events. Those properties that fall into (1) are not special to music, these are just the basic common properties of acoustics—frequency, intensity and duration are fundamental properties of all sound-events. Sound-events are just the regular propagation of air pressure waves, which can be measured in terms of the frequency, intensity and duration of compression and rarefaction. However these alone are not sufficient for a sound-event to be a *musical* event. Musical events are not constituted by some special class of acoustical properties. Another way of putting the point is that the musical qualities of a sound cannot be exhaustively described simply in terms of frequency, intensity and duration—musical properties cannot be reduced to acoustics.

As for the relational properties that fall into (2), many music theorists and psychologists have argued that what is salient to a sound's being perceived as music is that certain relations are perceived as holding between otherwise distinct sound-events.

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[4] For examples of the kind of claims music analysts make about what can be heard in a piece of music, see DeBellis (1995): 10. Also, while it is the purpose of this dissertation to consider whether these perceived musical relations are represented in the contents of experience, I should here point out that there is an analogous debate in the philosophy of science about whether perception is theory-laden. While this debate has clear parallels to my discussion, I will not comment on that debate here. DeBellis does comment on that debate in his book. See his (1995), Ch. Four. For an overview of the debate in philosophy of science, see Siegel (2005).

As Sloboda puts it, '[the] principle characteristic of music is that sounds stand in significant relation to one another, not in isolation. For music perception to "get off the ground" listeners must start to notice relationships and identify significant groupings [of sound-events].'[5] Sounds can be heard as having the kind of musical significance they do only when heard against the backdrop of sound-events that have come before. In the introduction to Krumhansl's book, she also notes the relationality of perceiving sounds as having musically salient qualities:

> Listening to music, we hear the sounds not as isolated, disconnected units, but integrated into patterns. Our perceptual experience goes beyond sensory registration of single musical events. Sound elements are heard in context, organized in pitch and time, and are understood in terms of their functions within that context.... In taking context into account, the listener apprehends increasingly larger temporal groupings. The listener appreciates the organization of a musical work by assigning significance to the sounded elements according to their roles in the musical context, and by integrating them into the broader pattern.[6]

Krumhansl's point here is that the representation of those musically salient qualities in a listener's auditory experience is just the representation of certain relations holding between individual sound-events or groups of sound-events. These are built up in part out of the physical properties of acoustics, but are not reducible to acoustics.

While it may be rather obvious that rhythm, harmony and melodic structure are relational, there may be some doubt as to why we should think of melodic function as a relation. I will explain. By 'melodic function' I mean the melodic position a note falls in within a particular key. Certain tones will sound more or less stable within a given context; the melodic function of a tone describes its relative degree of stability. *Tonic*, *dominant*, *sub-dominant* and *mediant* are all examples of melodic functions. Each note will have a different melodic function in different key contexts—for the note A, in A-major it is the tonic; in D-major it is the dominant; and in F-major it is the mediant. The major-key melodic functions in diatonic harmony are illustrated in Figure 3.1 below in the key of C-major.

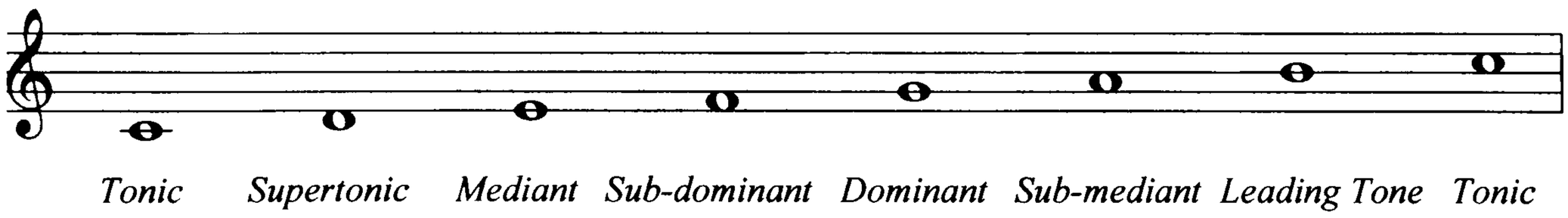

Figure 3.1

Notice that the first C and the last C in Figure 3.1 are both the tonic. That is because

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[5] Sloboda (1985): 154.

those two notes are both members of the same 'pitch class', they are both instances of C, and all tones within a given context that sound to be equally stable tones have the same melodic function. Pitch class can be defined in terms of melodic function in this way: any two notes that have the same melodic function are members of the same pitch class.

Melodic function is one quality that is represented in musical experience. To say that some listener represents a tone as being, say, the tonic is to say that the listener hears the tone as having a certain melodic function—the listener hears the tone as having a certain degree of stability within that context that can be described as its being the tonic. So, why should we think that this musical quality is a relational quality? For a listener to represent some tone as the tonic is for the listener to represent that tone in relation to some tonal context. If the tone heard is an A, and it is represented as being the tonic, then this would be for the listener to hear the tone as have certain stability relations to the other tones in that context. Thus, melodic function is a relational quality. Of course, one might question how it is that something like melodic function could be a relational quality when a tone is heard in isolation. Imagine pressing a single key on a piano and listening to the resounding tone—doesn't one hear the tone as having some melodic function even though one does not hear the tone in relation to any other tone? Yes, it does, but I would like to leave this question aside for now and examine it in more detail in Chapter Ten.

3.2 *Musical Experience and Representational Contents*

So, how might these musical relations be represented in experience, what would the structure of such contents look like, and how are these contents to be individuated? Luckily for DeBellis an explanation of this has been attempted by many psychologists and music theorists in recent years. These recent attempts to individuate the contents of musical experiences could be classified into two broad veins, namely as music-analytic accounts and as psychological accounts. Music-analytic accounts of hearing ascription typically seek to explain how listeners who are moderately acquainted with some musical background understand what they hear, one notable example being Fred Lerdahl and Ray Jackendoff's *Generative Theory of Tonal Music* (or GTTM for short).[7]

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[6] Krumhansl (1990): 3. Her book is very instructive and highly recommended.

[7] See Lerdahl and Jackendoff (1983).

Alternatively, similar sorts of music-analytic accounts could be made to work using other styles of musical analysis, such as Schenkerian analysis. What these theories attempt to do is to explain in music-theoretic terms exactly what relations the listener hears in the music—these seek to explain *how* the music sounds to the listener. These theories attempt to do this by offering an analysis of the music in the form of a musical graph with their own developed notational system that indicates the relations between the note-groupings in the music.

While GTTM and Schenkerian analysis attempt to offer music-analytic accounts of the way in which a listener hears a piece of music, a different kind of account of musical hearing could be given purely in psychological terms—that is, in terms of a listener's behavioural abilities and responses to things such as melody recognition, incomplete musical phrases or incorrect phrases. It is this sort of description that might best describe the auditory states of listeners who could be thought of as 'ordinary listeners', or those listeners with little or no musical background.

One further difference between the music-analytic and psychological accounts of hearing ascriptions are that the former tend to be mainly concerned with the 'deeper' structural qualities of music—harmonic relations between chords or structural relations between larger segments of a melody—while the psychological theories tend to be more concerned with the actual sequences of notes that a listener hears, called the 'musical surface'. The notes heard on the musical surface each have their own distinctive melodic function, and these contribute to the deeper structural or harmonic properties of a piece of music. The important point, however, is that what is common to both music-analytical or psychological hearing ascriptions is that the way in which a listener hears a certain musical figure—that is, either the particular sort of musically salient qualities and relations that a listener purportedly hears in musical perception, or the sort of auditory features that figure in a listener's behavioural responses to some musical stimulus—can be expressed by hypothesising a symbolic representation of the content of the listener's experience. DeBellis supports the claim that the contents of a listener's musical experience would correspond to one of these graphs.[8]

To illustrate this I will present a simple example of psychological hearing ascriptions by summarising DeBellis' presentation of the 'relative chroma model' of representation

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[8] Defending this claim is the subject of DeBellis (1991) and (1995), Ch. 1.

(we will examine music-analytic hearing ascriptions in the next chapter).[9] According to the relative chroma model, what is of interest is the way in which listeners represent the actual sequence of auditory events and the tonal relations between these. The most basic account of what a listener hears in musical perception must take into account the succession of auditory events that is presented and the basic properties of pitch, duration and amplitude. This is what is called the 'musical surface'. To simplify the discussion here, I will stick with the representation of musical pitch, leaving out rhythmic qualities and perceived loudness.

Let us take a simple example. The opening two measures of 'Mary Had a Little Lamb', in musical notation, would look like this:

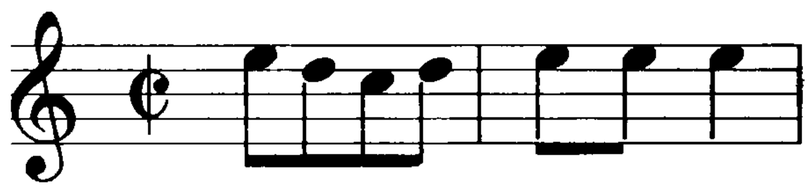

Figure 3.2

This sequence of notes is written here in the key of C-major, where the notes heard are E-D-C-D-E-E-E. On the relative chroma model of mental representation, this sequence of notes could be expressed as a sequence of pitch events that sound to be related to each other relative to some reference point or tonal context. This reference point, which could be thought of as the 'tonal centre', is typical the tonic. In Figure 3.2 above the reference point would be the key of C-major. Under the relative chroma model, each note that has the same letter name can be represented by the same chroma value.[10] The tonic is expressed numerically as *1*.[11] In the example above, C (the third note) is the tonic, and so is expressed as *1*. D is the second pitch in the key of C-major, expressed by the chroma value *2*, and E, being the third pitch, is expressed as *3*. So for the example above, on the relative chroma model, the representation of this melody in the listener's perceptual experience could be expressed as:

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[9] The relative chroma model is just one psychological theory of representation among many. I would refer the reader interested in these theories to the works cited by DeBellis, p. 12-13, in footnotes 24-26. Unfortunately, it would just take us too far afield for me to explore these other theories here in any detail.

[10] On this view, there are eight chroma values corresponding to the eight notes in a natural key. However the difference between major and minor keys on the relative chroma model cannot be represented. This is not an oversight, but rather is one point of the theory — that the third degree of a scale is represented to the listener as *3* regardless of whether it is a natural-3 or a flat-3. In either case, it is still the third degree relative to *1*.

[11] Due to the limitations of the notational system that I am using, in this paper I will use italicised numerals for chroma. This breaks with convention where chroma is usually represented as a numeral with a corn (^) above it.

3 - 2 - 1 - 2 - 3 - 3 - 3

Figure 3.3

One of the benefits of this model is that the same melody played in any other key would correspond to the same relative chroma sequence. For instance, the same melody played in the key of D-major would have as its sequence the note names F#-E-D-E-F#-F#-F#. This is a different set of notes from that of the melody played in C-major, however, as the tonic has shifted to D, then D would become *1*, thus the relative chroma sequence would still be expressed as *3-2-1-2-3-3-3*. Psychologists hypothesize that this model explains, for instance, how listeners are able to recognise some sequence of notes as being the 'same melody' as some previously heard sequence of notes even when the second sequence is played in a different key—thus, recognising two melodies as being the same on this view just amounts to recognising that both melodies fit the same relative chroma sequence.[12]

The relative chroma model does provide a plausible account of how a listener represents surface relations such as melodic function. However, while relative chroma model might be helpful for explaining simple recognitional capacities of melodies or behavioural responses to the auditory events represented on the musical surface, it is incapable of saying anything about those 'deeper' qualities of musical experience treated by GTTM or Schenkerian analysis that seem to be salient to the experience of a piece of music. For instance the relative chroma model would be inadequate to say anything about delayed resolutions: the relative chroma model simply illustrates the way in which a listener hears the sounds on the musical surface, though it is not able to explain why a listener hears a certain note as resolving to a note that does not follow in immediate succession. Nor can the relative chroma model explain harmonic movement or melodic force. Our experiential response to hearing a piece of music cannot seem to be captured solely by what can be heard on the musical surface. To explain these deeper structures we need something like GTTM or Schenkerian analysis. We will examine these in the next chapter.

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[12] Dowling and Harwood (1986).

3.3 *Conclusions*

DeBellis' view, following the psychological accounts offered by the proponents of GTTM, Schenkerian analysis and the relative chroma model, is that the contents of experience that represent those musical qualities that are taken to be salient to musical experience must correspond to some kind of graph. So, in the sentence 'S hears that *p*', what fills the '*p*' place in DeBellis' view is a graph illustrating the salient musical relations between the notes on the surface and the deeper structural relations of larger sections of the piece. As DeBellis says, 'music theory and analysis can be looked upon as musical phenomenology … because their descriptions of musical works coincide with the content of musical perception'.[13] While music-analytical graphs of the GTTM or Schenkerian style would suffice to represent 'deep' structural relations between groups of notes or sections of music separated by some temporal distance, something like the relative chroma model of musical representation would suffice to capture the content of musical experience at the more 'surface' level. DeBellis leaves it open exactly which type of graph would be the correct one—perhaps GTTM is sufficient to fully capture the representational content of musical experience, or perhaps it would be some combination of these views. Presumably it would be an empirical matter to discover exactly which theory is best.

My intention has been to explain what it would mean on DeBellis' account for musical experience to have a representational content, to find some candidate for what that content would look like. The discussion above is meant to illustrate how psychological theories of musical representation ascribe perceptual states with musical contents to listeners. In the next chapter, I will present DeBellis' argument for the claim that an intentionalist theory of the contents of musical experience can successfully account for the phenomenal feel of a piece of music. By presenting DeBellis' argument for strong intentionalism, I will thereby also examine why we should think that those non-physical musical properties do play a role in the contents of experience and will cover how large-scale structural qualities are represented in the contents of musical experience. We will examine the representational graphs posited by GTTM and Schenkerian analysis.

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[13] DeBellis (1991): 310.

CHAPTER FOUR:

WEAK INTENTIONALISM REJECTED

In the previous two chapters I offered an account of the intentional theory of perception and offered DeBellis' account of what the intentional content of musical experience would be. One of the central points of DeBellis' account that interests me is his claim that the phenomenal character of musical experience can be reduced to the intentional contents of the experience.[1] I believe that this is something DeBellis is right about, and take this to be his most important contribution to the debate over perceptual contents. His claim is that a listener hears the tonal relations on the musical surface as well as those relations that hold at the deeper structural levels. If this is correct, then DeBellis claims that a fully intentionalist account of the contents of experience can capture differences in the phenomenology of musical experience: provided that such musical graphs are capable of capturing the subtle differences in the phenomenology of musical experience, then such graphs would count as fully intentional descriptions of the content of a listener's musical experience.

In this chapter I will examine DeBellis' argument for strong intentionalism regarding musical experience. DeBellis worries that, if it can be shown for cases of musical experience that two mental states can have the same intentional content while being phenomenally distinct, then this would undermine his explanation of musical understanding. Remember that for DeBellis, understanding music is just hearing the music as being a certain way, which would allow one's understanding of music to be analysed in terms of a listener's being in a certain intentional state. But if these states are phenomenally distinct, then there can be no sure way of identifying the content of a listener's experience. To defend strong intentionalism, DeBellis must construct a plausible musical case where some content-bearing mental state may exhibit different phenomenal properties and then show how these cases can be handled by his theory of content in purely intentionalistic terms. By examining DeBellis' arguments for this, we will examine in more detail how large-scale structural qualities of a piece of music are represented in experience.

4.1 *The Puzzle Cases*

To quickly remind the reader, intentionalism is the view that all mental states have an intentional content—indeed, that the defining characteristic of a mental state is that it exhibits intentionality. When applied to perception, the thought is that perceptual experience is a kind of intentional state that is characterised by an intentional content (typically some proposition that fills the *p*-place in the statement 'S perceives that *p*') presented under some perceptual propositional attitude (sees *p*, hears *p*, smells *p*, etc.). Strong intentionalism is the further claim that any difference in the phenomenology of two mental states is due to a difference in their intentionality, or that any two mental states that are intentionally identical must be phenomenally identical as well. Alternatively, one might argue that those qualities that are salient to a listener's experience of music cannot be captured by a description of the content's intentionality, but must rather be explained in terms of a representational state's also possessing 'sensational properties', or 'phenomenal properties' or 'qualia'. On this sort of view, what is represented intentionally in perceptual experience is distinct from the phenomenal feel of the experience—the phenomenal feel of perceptual experience cannot then be reduced to the intentional content of the experience. Someone who accepts weak intentionalism holds that the phenomenology of perceptual experience cannot be reduced to the intentional contents of experience. If this is correct, then DeBellis' project would fail to get going: if the phenomenology of perceptual experience is to play the foundational role in musical understanding that DeBellis claims it does, then there must be a strong link (whether causal or reliable or whatever) between how the experience is for the listener and what the listener can know. The phenomenological claim holds that a listener must experience the music (phenomenally) as being a certain way, and on the basis of this experience is able to know, for instance, that the ending is a perfect cadence. However, if the phenomenology of perceptual experience is not tied closely to the contents of experience, then the link to knowing something about the music that DeBellis is after would appear to be severed. For this reason DeBellis defends *strong intentionalism*, which we can define as the view that also accepts that perceptual states have intentional contents, but claims that a complete description of the intentional contents of perceptual experience is all one needs to

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[1] See DeBellis (1991): 314-322, and (1995): Ch. 1.

capture the phenomenal character of that experience.

On a weak intentionalist theory of perceptual contents, it would be possible for two perceptual experiences to be identical as to their representational content and yet to be phenomenally distinguishable. Such a case would be demonstrated by the figure of dots that we discussed in Chapter Two, which could be perceived as either being aligned in columns or in rows (Figure 2.1, p. 37). The weak intentionalist would claim that the difference between representing the dots as being aligned in columns or as being aligned in rows is a difference between the phenomenal properties of the experiences while these states represent the same intentional contents. On this view the perceptual experience that accompanies the representation of the dots as being aligned into columns has a different 'phenomenal feel' from the perceptual experience that represents the dots as being aligned in rows.

Applying this to the case of musical perception, the suggestion would then be that hearing, for instance, the C-B tonal sequence in the key of G-major is an experience phenomenally distinct from that of hearing the same sequence of tones in the key of C-major (to remind, in G-major this sequence would sound resolved whereas in C-major it would sound very unstable—see Figure 1.2, p. 19), though both experiences should possess the same representational content—they would both represent a C-B tonal sequence. Looking a little further afield than the present discussion, the claims of weak intentionalism seem to present one possible solution to the problem of aesthetic disagreement. Aestheticians have long struggled over the problem of differences of taste; perhaps the answer is just that, when two listeners listen to the same musical performance where one listener finds the music interesting and rich and the other finds it difficult and discordant, though the contents of their experiences could both be thought of as possessing similar representational contents, each listener may be conscious of different phenomenal qualities. I don't believe that weak intentionalism is as plausible as it might seem in either the musical case or the aesthetic case; however I only mention the possibility of applying this to aesthetic cases in passing and would not wish to comment on it further.

The challenge for DeBellis, then, would be to show that a strong version of the intentional theory can account for the phenomenal differences between two otherwise similar musical events. A point on which DeBellis and I agree is the repleteness with which a strong intentionalist account of perceptual experience can handle such

phenomenal differences. DeBellis offers two arguments in two different sources[2] against the sort of view of sensational properties that Peacocke defends in *Sense and Content*. While Peacocke's defence of sensational properties is widely rejected, and that Peacocke himself has changed his mind on this point, my discussion of it here is more than a straw man. DeBellis' rejection of Peacocke's weak intentionalism is the setting within which DeBellis sets out many of the details of his representational theory of music. It is by showing how Peacocke's view of sensational properties can be countered that DeBellis sets out his nonconceptualist view of the contents of musical experience. It would then be helpful to examine DeBellis' arguments against Peacocke here as this will help to set up my disagreement with DeBellis.

In his (1983), Peacocke seeks to reject a claim that he calls the *Adequacy Thesis*: the claim that all the intrinsic qualities of a sensory experience are intentional qualities.[3] The Adequacy Thesis states that whenever two experiences are similar in regard to their subjective character, then they must be similar in regard to their intentional content, or that any difference as to the subjective character between two experiences is due to a difference found in their intentional content. Thus all there is to the subjective character of an experience can be given by a complete description of the intentional content of the experience. The rejection of the Adequacy Thesis is what distinguishes weak intentionalism from strong intentionalism. In his earlier works, Peacocke had rejected the Adequacy Thesis on the grounds that phenomenally distinct perceptual experiences can have the same representational contents.

Peacocke presented a number of now well-known examples that he claims prove the falsehood of the Adequacy Thesis.[4] In addition to these, Peacocke offers three more difficult examples that he claims offer a stronger challenge to the Adequacy Thesis, which DeBellis calls the 'puzzle cases'.[5] The first of the puzzle cases that DeBellis presents, again, is Figure 2.1 from page 37 above. In the second case cited by DeBellis, audible clicks or beats that last for an identical duration, have gaps of silence between

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[2] DeBellis (1991) and DeBellis (1995), Chapter 2. My exegesis in this section will draw from both of these.

[3] Peacocke (1983): 9.

[4] The first example is where one sees two trees that are the same height though the second tree is twice the distance from the viewer as the first. In one sense both trees look to be the same height, though the second tree takes up less space in the viewers visual field. The second example is where a visual scene looks different to a subject who views it with only one eye rather than two. The third example is of the experience of aspect shift that one finds in the case of the Necker cube. Peacocke lays out these examples in his (1983): 12-17. For DeBellis' criticism of these examples, see his (1991): 306-308.

[5] Set out in DeBellis (1991): 308-309.

them of an equal duration and no identifying differences of pitch or emphasis can sound to be grouped in either triple (a) or duple (b):

(a) (b)

Figure 4.1

In Figure 4.1 above, the six beats are heard to be grouped in either of two ways. It is Peacocke's supposition that hearing the beats as being grouped in (a) is an experience that is phenomenally distinct from hearing the beats as being grouped in (b), however perceptual states representing either (a) or (b) may possess the same intentional contents. That (a) and (b) are indeed phenomenally distinct is quite obvious. The difference between these rhythmic groupings could be illustrated by imagining how a listener would attempt to count the rhythm. A listener who counts, 'One-Two-Three-One-Two-Three' is counting in two sets of triplets (a), whereas the listener who counts, 'One-Two-One-Two-One-Two' is counting three sets of duplets (b). The listener hears (a) as having different rhythmic accent or stresses. However, the individuate beats may be in all other respects indistinguishable—they may be the same temporal distance apart—in which case (a) and (b) may be represented by the same intentional content. In such a case, Peacocke argued that there is a representational similarity (six beats evenly spaced) with a phenomenal difference (hearing two triplets as opposed to hearing three duplets).

The final case, and the one that will occupy the remainder of this discussion, is that of hearing the tonality of a tritone when the interval is heard in isolation. This example will take some explaining. A tritone is an interval between two notes that is exactly the distance of half an octave. The interval of a tritone is one semitone wider than a perfect fourth and one semitone narrower than a perfect fifth. The tritone sounds to have the greatest tension within the even-tempered Western tonal system.[6] Because of the tritone's tense quality, it has a central function in diatonic harmony—a tritone must

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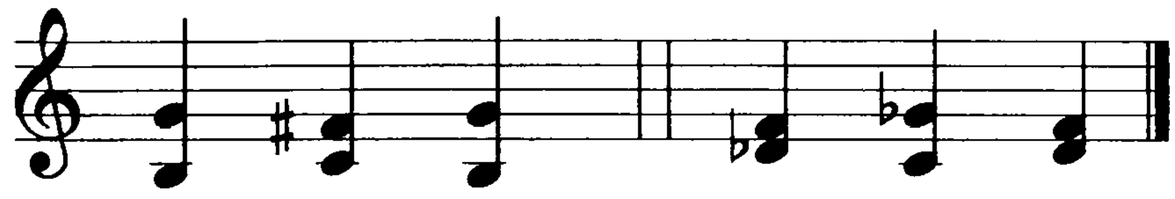
[6] One caveat: my discussion, as well as DeBellis', is concerned solely with the even-tempered chromatic scale in Western harmony. Many of the music-theoretic claims made here would not apply to other harmonic systems, such as the tonal systems used in Indian and Malaysian music.

always resolve to the tonic.[7] However, because the tritone is exactly half the distance of an octave, when a tritone is heard in isolation, it could be heard as correctly resolving to either of two keys. So, for instance, a tritone consisting of the notes C and F-sharp (G-flat) could either resolve to G major or D-flat major:



(c) (d)

Figure 4.2 [8]

For the non-musician, this example is meant to illustrate a potential ambiguity in two-part harmony. In (c) above, there are three sets of 'dyads' or two note chords. The first dyad and third dyad are identical types, being constituted by the notes B and G (reading from the bottom up), which typically implies a G-major chord in first inversion. The second dyad in (c) is constituted by the notes C and F-sharp. The tonal 'distance' or interval between the notes C and F-sharp is exactly half of one octave—a tritone—which in Western harmony is a very unusual interval. Each major key naturally contains only one tritone.

Within the harmonic context of the key of G-major, the note C (sub-dominant) has a strong tendency to resolve to the note B (mediant), and the note F-sharp (leading tone) has a strong tendency to resolve to G (tonic), and this is exactly what happens between the second and third dyads of (c). The key of G-major naturally contains the notes C and F-sharp, and these two notes partly constitute the chord D^7, which is the dominant chord in G-major. When C and F-sharp are played as a dyad, the resultant harmony is described as being very tense, as if it is 'pulling' towards the B-G resolution. So when a normative listener hears the series of dyads in (c) correctly, she would hear the notes as implying a G - D^7- G progression.

Now, in (d) above we again have a series of three dyads, where the first and third are identical and the second is a tritone. In (d) the first and third dyads are constituted by

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[7] This is true in major-key diatonic harmony where there is only one naturally occurring tritone—between the *4* and *7* as in the V^7 chord—which must resolve to the tonic. In other harmonic systems it is not always the case that a tritone must resolve to the *tonic*. In jazz, for instance, seventh chords are used quite widely, often resulting in the music's having a moving, vibrant or active feel. Blues also uses seventh chords freely to achieve its characteristically rough 'bluesy' feeling. In these instances the tritone need not resolve to the tonic.

the notes D-flat and F, which imply a D-flat-major chord, while the second dyad is C and G-flat. In the context of the key of D-flat-major, the tritone between C and G-flat naturally occurs, and this tritone partly constitutes the chord A-flat^{7}, which is the dominant chord of D-flat-major. So, when a normative listener hears the series of dyads in (d) correctly, then she would hear this series as implying the harmonic progression D-flat - A-flat^{7}- D-flat.

What is interesting about this example for DeBellis' argument is that the second dyad in (c) is type-identical to the second dyad in (d)—that is, the tones that the note names C and F-sharp refer to are exactly the same tones that C and G-flat refer to forming exactly the same tritone interval. The non-musician might find this somewhat confusing, so to clarify: between the notes F and G is a third note, which can be referred to as either F-sharp or G-flat. The note names 'F-sharp' and 'G-flat' refer to exactly the same musical tone, like 'Hesperus' and 'Phosphorus' refer to exactly the same planet under different descriptions. The use of the different note names is partly a matter of convention, but mainly the different note names reflect the different harmonic functions that the same note can play in different harmonic contexts. On the one hand, it is a matter of convention as the key of G-major naturally contains the note G and the note one semitone below it, whereas the key of D-flat-major naturally contains the note F and the note one semitone above it. It would be very confusing if the key of D-flat-major contained both an F and an F-sharp, or if the key of G-major contained both a G and a G-flat. On the other hand, and more importantly, the different note names reflect something about the melodic function of the note indicated. 'F-sharp' refers not only to the note just below G in the key of G-major, but also reflects that that note has the harmonic function of being the leading tone in the key of G-major. If the same note (still in G-major) were referred to as 'G-flat', then this would refer to the first degree of the scale, the G, rather than referring to the seventh degree, the F-sharp. If the name 'G-flat' were used in the key of G, then this would indicate that something unusual has happened to the first degree of the scale. In music theory, when one tone can be referred to under two different names, this is known as 'enharmonic spelling'—the notes are tonally equivalent while the difference in spelling indicates something about the note's harmonic function.

The tritone example in Figure 4.2 is of interest for our discussion because of what

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[8] This figure is the example DeBellis presents at (1991): 309.

happens when a listener hears a tritone played in isolation—that is, if a listener hears the second dyad in (c) alone, without hearing either the first or third dyads. In this case, the listener would hear a very tense chord, one that sounds as if it is pulling towards a resolution—but which resolution? The listener could represent that dyad as being the tritone either of G major or of D-flat major due to the harmonic ambiguity. The important part, however, is that the listener *would* hear the tritone as being part of some harmonic context—indeed, this is required if the tone is to sound tense. The listener hears the tritone as being some way, but considering that the tone is heard in isolation, the listener could hear the tritone as being situated within either harmonic context. And hearing the tritone resolving to G-major is phenomenally different from hearing the tritone resolve to D-flat-major. To show that these mental states associated with these two ways of hearing the tritone are phenomenally distinct, consider this: suppose a listener hears a piece of music in G-major and at some point in that piece of music they hear the C/F-sharp dyad. If this is a normative listener, then they would hear that dyad as 'pulling' towards or anticipating the G-major resolution. Now, if the chord that followed the tritone was actually a D-flat-major (remembering that, up until now, the piece of music had been in G-major), then this would have a very unexpected quality, perhaps it would even sound wrong, though in the key of D-flat-major one might hear the very same dyad. That the perceptual state that represents the tritone as resolving to D-flat-major is phenomenally distinct from the state that represents the tritone as resolving to G-major can be shown by noting that the two mental states cannot be swapped in midstream. A listener has different expectations when they hear the tritone as resolving to G-major than when they hear the same tritone as resolving to D-flat-major.

How do we describe the way in which the listener hears the tritone? The listener hears the tritone as being tense relative to some tonal context; the question of course is which tonal context the listener hears the tritone as being related to. This question really is about what the correctness conditions are for hearing ascriptions. By saying that the listener hears the tritone as being related to some tonal context, we are thereby attributing the listener with an auditory experience having a certain content. Must the correctness conditions for hearing ascriptions capture the sense in which the listener hears the music? Of course it must, if the hearing ascription is to be an accurate description of how the listener *experiences* the music, and this is what a musical graph of the kind DeBellis describes is meant to do. If the listener hears the tritone as

resolving to G-major, then it would be incorrect to attribute to that listener a content that represents the tritone as resolving to D-flat-major (though such a hearing ascription may be correct *de re*). It would be incorrect because such a content ascription would fail to capture the sense in which the listener expects the tritone to resolve (that is, it would be incorrect *de dicto*). Again, it is for this reason that DeBellis requires an account of content that is more fine-grained than the possible worlds theory of content. The musical graphs postulated by GTTM and Schenkerian analysis are sufficiently fine-grained to distinguish between hearing the tritone as resolving to G-major or as resolving to D-flat-major.

Someone defending strong intentionalism must show how the phenomenology of the experience is reducible to or exhausted by the intentional content of the listener's auditory experience. Opposed to this, the weak intentionalist may argue that both mental states have the same intentional content—they both represent the same two-note interval—and any phenomenal difference between the two perceptual experiences is independent of their intentional content. If this were the case, then this would bolster Peacocke's rejection of the Adequacy Thesis. The challenge for the strong intentionalist, then, is to offer an adequate account of such phenomenal differences as in the tritone example in purely intentional terms.

4.2 *GTTM as Representational Content*

What DeBellis offers is an account of the tritone example through the GTTM style of music analysis, claiming that this provides a plausible strong intentionalist account of the contents of musical experience. He argues that such styles of musical analysis might adequately capture the phenomenal differences between the two hearing ascriptions and might stand as a model of the intentional content of musical experience. His claim is that the content of musical experience 'corresponds' to some music-analytic graph.[9] As he says, 'A graph of GTTM is thus … a kind of mental map. But it is not a map of a mental representation—of its intrinsic features involving neurons and synapses—so much as a map that specifies the mental representation's content, what that representation represents.'[10] Furthermore, one of DeBellis' claims is that, in addition to what can be heard on the musical surface, other large-scale structural

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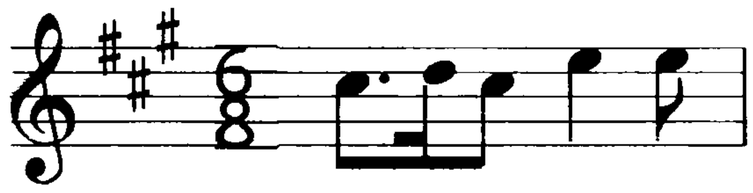
[9] DeBellis (1991): 312.

[10] DeBellis (1995): 25. DeBellis' discussion in §1.2 is the relevant section of his book.

qualities also make a phenomenological contribution to musical experience. Indeed, it is by accounting for these 'deeper' structural qualities that we would be able to explain the tritone case in purely intentional terms. To illustrate this, I will give a quick sketch of GTTM analysis.[11]

GTTM analysis is a means of explaining structural and harmonic relationships between segments of a piece of music at increasingly more abstract levels. It does so by abstracting from the 'surface level' or 'foreground' of auditory experience—the level that is directly perceived, that of the succession of individual sound-events themselves—by a set of 'prolongational operations' to the increasingly abstract 'background' structural levels, where the harmonic and structural relations between musical phrases may become more apparent. Under this style of analysis, the music theorist might simplify a musical motif to a single note or pair of notes that symbolises the harmonic function of that motif. By simplifying the surface level into its overall harmonic function, the deep structure of the piece may be slowly revealed. So, for example, the musical surface of the first measure of Mozart's Piano Sonata in A-major (K. 331) looks like this[12]:



On DeBellis' account, the above measure could roughly stand as an expression of the intentional content of the 'surface level' or 'foreground' of a listener's auditory experience, this level of experience representing what is actually heard at the level of the auditory event.

However, the surface level is not all that plays a phenomenological role in musical experience. What also plays this role are those larger-scale relational qualities like harmony, rhythmic grouping, melodic tendency and overall structure. These qualities are represented in increasingly deeper levels. To make these structural qualities more obvious, we begin by simplifying the phrase by removing those elements that make little harmonic contribution to the whole piece. For instance, the second note of the above measure has a mainly melodic function—it functions as an ornamentation thus making the melody more interesting. In order to reveal the underlying harmony of the

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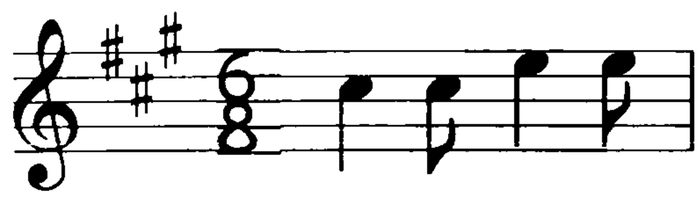
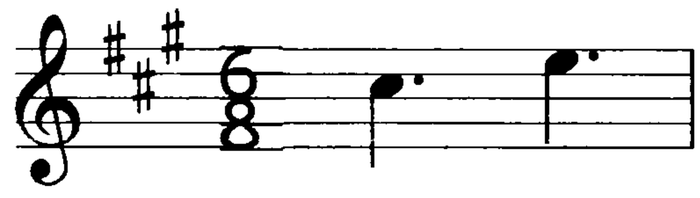
[11] DeBellis does not labour over the fine details of GTTM analysis, and neither will I. For more on this, DeBellis directs the reader to Lerdahl and Jackendoff (1983).

[12] The following four examples and exegesis are adapted from DeBellis (1991): 310-311, where he attributes the example to Westergaard (1975): 37.

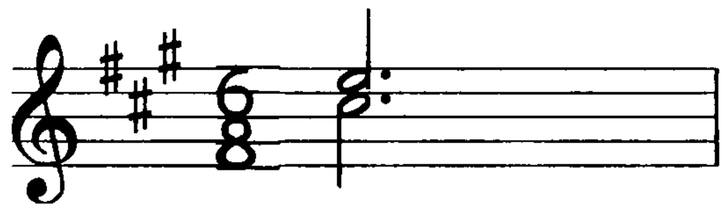
'intermediate structural levels' or 'middle ground' more clearly, the second note could be removed, which would leave the measure looking like this:



After having cleared away the ornamental note, this variation on the measure leaves us with the underlying harmony and primary rhythmic pulses. Of course, if it is the underlying harmony that we are interested in, then the rhythmic organisation is irrelevant, and we can remove the repeated notes leaving us with this:



This variation, however, can be simplified further. Combining these two notes into one chord shows us precisely what is the underlying harmonic structure of this passage, it is a C-minor dyad:



Having abstracted away from the surface level through the intermediate levels, what we are left with here is the final 'background' harmonic-structural quality of the Mozart measure, which in Chomskian-style could also be described as the measure's 'deep structure'.[13] Breaking down an entire piece of music in this way, GTTM analysts hold, would make the macro-structure of a piece of music more apparent, as a means of bringing out the harmonic relations between the individual motifs, measures or whole sections of a piece. DeBellis' idea is to employ this technique of analysising music to claim that 'an auditory experience might, in its content, correspond to a [GTTM] graph. This means that one would hear the musical surface *as bearing* relations of a [GTTM] sort to the indicated passages on higher structural levels'.[14] I will explain.

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[13] Throughout their book, Lerdahl and Jackendoff draw parallels between their generative theory of tonal music and Chomsky's generative theory of language. See especially (1983): §§1.2, 11.4 and 12.3. For a very interesting discussion of the influence of Chomsky and its relation to GTTM, see Raffman (1993): 15-27.

[14] DeBellis (1991): 312. It should be noted that in DeBellis (1991) essay, he is discussing Schenkerian analysis rather than GTTM, and that my demonstration of the Mozart Piano Sonata is taken from DeBellis' (1991) illustration of Schenkerian analysis, however the main point DeBellis is pushing is applicable on either view. Officially, DeBellis is neutral about which system should be preferred. The argument that DeBellis makes here could be given equally well for Schenkerian analysis. DeBellis' (1995) focuses more attention on GTTM.

As discussed previously, what a listener hears in musical experience are sequences of sound-events—the notes of a tune. Each note contributes to the phenomenology of the experience by virtue of its tonal quality. So, on the surface level, the contents of musical experience would present us with a sequence of tones each making its own contribution to the ever-changing phenomenology of the experience. But this concatenation of changing tones on the surface level is not all that contributes to the phenomenal quality of the experience—that is, the notes of the tune is not all that a listener hears. The listener also hears large-scale relations holding between groups of tones—perhaps the listener hears certain groupings of tones being repeated, or unstable tones resolving after a long delay, or changes in character over large segments of the music. These large-scale qualities also make contributions to the phenomenology of the experience, and these cannot be reduced simply to the effects of the notes on the surface. So, DeBellis claims, the contents of musical experience must represent qualities that are deeper than the surface level to accurately characterise how a piece of music sounds to a listener. What a GTTM graph intends to do is to simplify musical phrases down to certain large-scale relations in order to make this deeper level more apparent. A GTTM graph typically has five staves running together, the top stave showing the musical surface and the lower staves increasingly becoming more abstract, illustrating what Lerdahl and Jackendoff describe as the five distinct levels of musical organisation: the musical surface, the grouping level, the metrical level, the time-span reduction level, and the prolongational reduction level.[15] GTTM graphs also employ a tree notation for the various reductions to deeper levels above the top stave to illustrate the hierarchical structure of the phrases. Each break in the tree indicates that some phrase at a higher level is an elaboration of a phrase at the level below.[16]

When analysing a piece of music, at each stage in a GTTM graph, the music analyst must make a decision about how to interpret a particular passage. Lerdahl and Jackendoff offer some guidelines for analysing a piece—prolongational operations—however despite these guides, when complicated musical works are analysed using these devices one finds that it may be possible for two theorists to disagree as to how a piece of music is to be analysed, each arriving at incompatible background analyses

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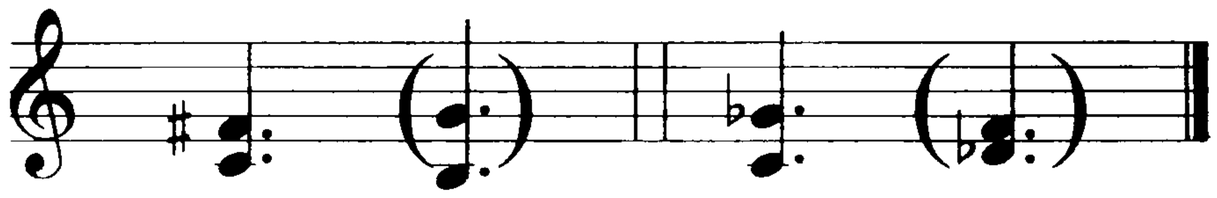
[15] The reader will notice that my demonstration of Mozart's Piano Sonata above only has four levels. This is again because my demonstration of this one measure is adapted from DeBellis' illustration of Schenkerian analysis, and on that the third level is identical to the fourth level. Cf. DeBellis (1991): 311; and for an example of a GTTM analysis of this measure, see DeBellis (1995): 3.

[16] Lerdahl and Jackendoff (1983): §5.3.

while both correctly following the GTTM method. And this is the stuff of debate among music analysts: just what is the correct way to 'hear' a piece of music. This, incidentally, illustrates a point DeBellis makes in arguing for his claim. Music analysts do not just argue over how a piece of music is to be analysed in some abstract academic way. Rather the debate is over how the music is actually *heard*. Music sounds to be a certain way, and it is the analyst's job to uncover how it is heard by constructing an illustrative graph. A graph of this kind is meant to capture the content of the listener's experience—it illustrates exactly how it is that the music sounds to the listener. Thinking of the demonstration of Mozart's Piano Sonata above, the claim is that the listener hears all of the musical relations on the musical surface as well as those relations that hold at the more abstract levels and that an accurate account of the content of the listener's musical experience must take these 'deeper' relations into account. If this is correct, then DeBellis claims we have our way of defending strong intentionalism: provided that such musical graphs are capable of capturing the subtle differences in the phenomenology of musical experience, then such graphs would count as fully intentional descriptions of the content of a listener's musical experience.

4.3 *Explaining Away the Tritone Case*

Returning to the tritone example in Figure 4.2, DeBellis' account of the contents of musical experience would allow that a strong intentionalist can account the difference between (c) and (d) as the phenomenal differences between these mental states can be expressed by different GTTM (or Schenkerian) graphs. On DeBellis' view, the content of the musical experience for a listener who hears the tritone C and F-sharp played in isolation as the dominant chord of G-major can be described by the graph in Figure 4.3 (e), whereas the experience of the listener who hears the same tritone as the dominant chord of D-flat-major can be described by the graph in 4.3 (f):



(e) (f)

Figure 4.3

To explain, the first dyad in each measure is, again, the tritone C/F-sharp(G-flat). This is the interval that the listener hears in isolation. The second dyad in brackets is not actually heard but is what the listener *anticipates* hearing. The key to explaining the phenomenal difference between hearing the tritone as resolving to G-major rather than as resolving to D-flat-major, on DeBellis' account, is to take into account what the listener anticipates hearing next. The listener who hears the tritone as resolving to G-major is in a mental state that has a different content from the listener who hears the tritone as resolving to D-flat-major. These two mental states are phenomenally distinct—anticipating a G-major resolution is phenomenally distinct from anticipating a D-flat-major resolution—and this phenomenal distinction can be captured by a GTTM graph. The strong intentionalist may then claim that the mental states represented by (e) and (f) above have different intentional contents as each mental state represents different resolutions. In a footnote, DeBellis says that, strictly speaking, the tritone in isolation is heard as being 'incomplete'—as he says, 'the relevant relation [represented as being heard in perceptual experience] is that of neighbour motion; when the tritone is heard in the absence of musical context, it is *incomplete* neighbour motion'.[17] I have tried to capture the feeling of incompleteness in Figure 4.3 by notating the chord that the tritone is being heard as resolving to in brackets (♩)—this is intended to indicate an incomplete but implied resolution. As the G-major in (e) is not actually heard, the content of the perceptual experience must represent the tritone as sounding incomplete. This would then account for the listeners' hearing the tritone as anticipating a certain resolution. The use of the brackets to mark the incompleteness of what is heard might also be used to distinguish these cases of hearing the tritone in isolation from cases where the tritone is heard with the resolution as well.

I find this defence of intentionalism for musical perception quite compelling. Indeed, I think that DeBellis' defence of intentionalism is his most important contribution to this debate. The virtue of this conception of content is that, as well as offering a plausible defence of an intentional theory of musical perception, it offers an means of explaining how the harmonic relations of a piece of music can form part of the content of a listener's auditory experience though what the listener hears is, strictly speaking, not a simple auditory event. Often what can be heard is, on the surface level, quite confusing, ambiguous, and highly complex. DeBellis' account would allow that,

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[17] DeBellis (1991): 313, n. 23.

despite these complexities, listener's often grasp the deeper levels of harmonic simplicity and unity pervading a piece of music, and that this level of musical experience plays an integral role in defining the character of a listener's auditory experience. On this view, 'one hears the passage as being related in certain ways to passages that … do not sound',[18] or in other words, the listener represents a musical passage as having some relation to another musical passage that is not (strictly speaking) part of what is heard. Systems of musical analysis such as GTTM bring out the way in which the listener hears relations that are not given by the surface level of the auditory experience in a more explicit way, and DeBellis' use of these systems of musical analysis as offering a means of describing the contents of musical experience would allow a strong intentionalist account of those contents.

DeBellis' defence of strong intentionalism also illustrates how large-scale structural qualities of a piece of music may be represented in experience, and what it means for 'musically salient qualities' to be represented in the contents of experience. To represent those large-scale structural qualities of a musical piece requires a theory of musical content like that offered by GTTM that can accommodate deeper levels of musical complexity that go below the musical surface. As it is the business of these graphs to map out the underlying relational qualities that are heard in the music more explicitly, then if the representational content of experience does correspond to some graph of music analysis, then these systems of music analysis allow us a way of expressing how these 'deep-structure' relational qualities may be represented in experience.

However, it is left open in DeBellis' discussion exactly which large-scale structural properties would be represented. A theory of the contents of musical experience should account for things such as delayed resolution, or incomplete resolution, or modulation. But what should we think about more challenging structural properties? For instance, is retrograde inversion a salient musical relation that would figure in the contents of a listener's musical experience? And how large-scale could these structural properties be? Would musical salience include things like sonata form? DeBellis does not satisfactorily settle these questions, though some answers are needed as these are not idle questions.[19] There is much debate in the area of musical understanding as to what

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[18] Ibid.: 312.

[19] DeBellis (1995), Ch. 6 is devoted to understanding musical structure, however he does not provide reasons for thinking that large-scale structures do figure in the contents of experience.

structural qualities a listener must attend to.[20] Is it necessary for a listener's understanding of a piece of music that they should be able to recognise the sonata form? Or should they be able to recognise retrograde inversions? In terms of DeBellis' project, if a listener's understanding of some music can be analysed in terms of the content of the listener's intentional states, then it is a meaningful question to ask of DeBellis' theory whether structural qualities such as sonata form and retrograde inversion do enter into the content of the listener's experience.

Providing an answer to these questions is within the range of DeBellis' theory already—the phenomenological claim for musical understanding might give us one way of answering this question. A general claim could be made that those features of a musical composition that matter to a listener's intentional content would be restricted to those features that make an appropriate phenomenological contribution to the listener's experience. By 'appropriate phenomenological contribution' I mean that, for example, if a listener were to hear an inverted melody, then hearing the melody *as* an inversion must make a phenomenological contribution to the listener's experience that would be absent if the listener were to hear the same sequence of notes that was not part of an inversion. It can be shown empirically that, for instance, medium-scale musical structures like cadences do make a phenomenal difference to the listener's experience. However, I sincerely doubt whether musical devices such as retrograde inversion would make such a difference. (I hold the same doubt about the phenomenological contribution of sonata form, though less strongly.) Rather, my intuition is that a listener's ability to notice these complex musical devices is an intellectual exercise, and carries an intellectual enjoyment. Retrograde inversion is simply not phenomenologically salient to a listener's experience of the music. While I have strong doubts about the relevance of retrograde inversion or sonata form being phenomenologically salient, I would be happy to be proved wrong—that is, I would accept that retrograde inversion could be a musical quality that should be part of the representational content of a listener's perceptual experience *if* it could be shown that melodic inversion does make the appropriate phenomenological difference to the listener's experience.

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[20] See Kivy (1990), Levinson (1997) and Scruton (1983).

4.4 *An A Priori Argument for Strong Intentionalism?*

Before leaving this topic, however, I wonder if an argument for strong intentionalism for musical experience can be made on different grounds. The argument that DeBellis gives for defending strong intentionalism relies on his being able to offer an account of the contents of musical experience that can explain the phenomenological differences between two seemingly identical representational states, as in the tritone case. But perhaps a reason for favouring strong intentionalism could be found that does not rely on our ability to handle those 'puzzle cases'.

Our motivation in this dissertation for examining the contents of musical experience were to find if there is some basis in perceptual experience that holds in common between trained and untrained listeners that would ground musical understanding—to determine whether the phenomenological claim for musical understanding is correct. To remind the reader, the phenomenological claim states that musical understanding is based on the phenomenology of the perceptual experience such that, for a listener to understand a piece of music, all they need attend to is the phenomenal character of their perceptual experience—they must attend to the way in which the music sounds to them. It is their experience of the music that the listener wishes to understand, and they attempt to do so by attending to the phenomenology of their perceptual experience. Indeed, this is the only resource that the untrained listener has at their disposal, lacking any specific musical knowledge. However, the important point of the phenomenological claim is that the untrained listener's lacking any musical training does not put them at a disadvantage as the way that the music sounds is common ground to all who possess the right perceptual sensitivity. This would be a wholly unintelligible way of proceeding unless it were thought that the phenomenal quality of perceptual experience was tied to how the music *is* in some law-like way—that is, it would be an unintelligible way of proceeding unless one believed that a listener's musical experience has that particular phenomenological quality specifically because it is that very sequence of notes that the listener hears in the music. If the music consisted of some other sequence of notes, then the experience would feel differently.[21]

Now, the weak intentionalist's claim is that the phenomenal quality of perceptual

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[21] This would seem to imply some kind of inferential account of musical understanding where the listener infers facts about how the music is from the way that their perceptual experience feels. Though I am doubtful of the possibility of such inferential accounts succeeding—indeed, I will later argue that the phenomenological claim fails partly because it relies on this inferential point—I ask the reader to grant this for the moment.

experience is not tied to what it is an experience of—that is, there is more to the phenomenal quality of experience than can be given by a complete description of the intentionality of the perceptual state. But there seems to be an incompatibility between this and the phenomenological claim. On the view of musical understanding we are considering, a listener comes to know something about the music, or understand something about the music, by attending to the phenomenology of their experience. Thus the counterfactual assertion above—that if the music consisted of some other sequence of notes, the experience would feel differently—seems to be all we need to have a fully intentionalistic account of the contents of musical experience. I will explain. If the intentional content of a listener's musical experience can be fully captured by some kind of musical graph as DeBellis argues, and if the phenomenology of the perceptual experience feels the way that it is *because* it is that very sequence of notes that the listener hears, then the phenomenology of the perceptual experience just is what the musical graph describes. Remember that the musical graph that DeBellis describes is meant to capture the way in which the listener hears the music as being—if the music had sounded some other way to the listener, then the content of the graph would have been different. If the phenomenology of the perceptual experience is thought to be a good guide to understanding the music (the phenomenological claim) and this way that the music is experienced can be captured in a musical graph (DeBellis' claim), then what more would be needed to defend strong intentionalism?

This argument, however, does not work as it gets the theoretical dependence backwards. The reason why the phenomenological claim seems so intuitively appealing only is because we have an independent means of rejecting weak intentionalism. We cannot take the acceptance of the phenomenological claim for musical understanding as being prior to our rejection of weak intentionalism. Some one who holds a weak intentionalist theory of content would not accept the phenomenological claim as the weak intentionalist holds that the phenomenology of experience is a property of a mental state, not a property of the music. The phenomenological claim cannot provide an *a priori* argument for the rejection of weak intentionalism, rather it is only by the rejection of weak intentionalism that the phenomenological claim becomes plausible. DeBellis must reject weak intentionalism in order for the phenomenological claim to get a foothold.

4.5 *Conclusion*

In this chapter, I examined DeBellis' defence of strong intentionalism. He argues that music-analytic theories such as GTTM or Schenkerian analysis could provide a satisfactory account of the contents of musical experience. His claim is that the content of musical experience corresponds to some music-analytic graph. The content of a listener's musical experience represents certain properties and relations as holding between individual sound-events heard in auditory experience. Some of these relations cannot be specified at the 'surface level' of auditory experience; rather they require the postulation of a 'deep structure'. An important feature of DeBellis' overall intentionalistic account of musical experience is his claim that the contents of musical experience are nonconceptual. DeBellis needs this claim in order to explain how it is that an untrained listener might represent musical events as having certain properties or as standing in certain relations to other musical events even though the listener lacks any conceptual understanding of these properties and relations. However, before reviewing DeBellis' argument for this, it would be helpful to say something about what nonconceptual content is. In the next chapter I will look at the notion of nonconceptual content and its role in the intentional theory of perception. In Chapter Six I will offer one constraint on the application of nonconceptual content. In Chapters Eight and Nine I will examine DeBellis' arguments for nonconceptualism in the contents of musical experience.

CHAPTER FIVE:

CONCEPTS, CONCEPTUAL ABILITIES AND THE CLAIMS OF NONCONCEPTUALISM

DeBellis argues that the contents of musical experience are nonconceptual.[1] This fits into his overall goal of explaining musical understanding in this way: the contents of musical experience capture the way in which a listener hears a piece of music; these contents can be expressed in music-theoretic terms; however there is no constraint on the listener that she must possess a music-theoretic understanding of these concepts in order for her to be in a mental state with a certain content. A listener may hear a musical phrase *as* a perfect cadence even though she does not possess the concept *perfect cadence*. For DeBellis, experiencing the music as being a certain way is all that there is to understanding it, therefore DeBellis must accept some version of nonconceptualism if these contents are meant to be available to untrained listeners. We should therefore review the notion of nonconceptual content.

In this chapter I will examine the standard positions that theorists take in this debate regarding concepts, will offer my own theoretical commitments in this area and will offer a quick sketch of the notion of nonconceptual content. Tom Crowther has suggested that the debate over nonconceptual content can actually be seen as two separate debates—one about whether contents are composed of concepts and the other about whether the attribution of some representational states to a subject requires that that subject possess the concepts that constitute that content. Following from this, I will argue that the debate over the attribution of nonconceptual representational contents turns on whether some content-bearing mental state requires that the subject possess a certain conceptual ability in order for the subject to be in that representational state. Next, I will argue that the possession of a conceptual ability is independent of the possession of linguistic abilities. Finally, I will turn to the debate over nonconceptual content and offer three possible ways of understanding this debate. The notion of

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[1] DeBellis (1991), (1995), (1999), (2002) and (2005). The notion of nonconceptual content is quite widely debated. For some other defences of nonconceptual content, see Bermúdez (2003b); Bermúdez and Macpherson (1998); Crane (1992b), (2003); Cussins (2003); Evans (1982); Kelly (2001b); Martin (2003); Peacocke (1992a), (2001); Stalnaker (2003); and Tye (1995). For criticisms of nonconceptual content, see Brewer (1999); McDowell (1994), (1998a); and Sedivy (1996).

nonconceptual content that I think is most interesting in the debate over perceptual contents is the notion of content that characterises the conscious level of experience for a subject that does not require the subject's possession of any conceptual abilities. I will contrast this notion of nonconceptual content with the other alternatives and show why this is the notion of nonconceptual content that is most pressing in debates over perceptual contents.

5.1 *Crowther's Distinction*

In his Ph.D. dissertation, Tom Crowther noted that within the debate over perceptual contents, there seem to be two competing notions of how some content may be nonconceptual.[2] On some accounts, the debate over nonconceptual content is a debate about the ontological status of contents—whether they are constituted out of concepts. For some content to be conceptual in this way would be for that content to be constituted entirely of concepts, as in the case of Fregean Thoughts, for instance; whereas to be nonconceptual would be for that content to not be constituted of concepts, as in the case of Russellian propositions. Some content is *compositionally* nonconceptual if it is not fully constituted of concepts.[3]

Alternatively, one could view the debate over nonconceptual content as a debate over whether a subject needs to possess a certain psychological capacity in order to be in a mental state with a certain content. When the debate is understood in these terms, then it is a debate over whether the attribution of some content-bearing mental state requires that the subject possess some kind of conceptual ability. For instance, the subject may require the possession of a conceptual ability to recognise dogs in order for the subject to be attributed the thought 'that is a dog'. This debate centres on whether some contentful mental states that a subject can be in do require some kind of conceptual abilities and other contentful mental states that do not. The question here is what sort of psychological abilities must be required of a subject in order for them to be attributed a contentful mental state of some kind. Within this debate, some content is *attributionally* nonconceptual if a subject can be in a mental state that represents some content without requiring that the subject possess some conceptual ability for the representation of that

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[2] Crowther (2001).

content.[4]

This distinction between compositional and attributional arguments for nonconceptual content was developed in Tom Crowther's Ph.D. dissertation. There he argues that these two notions of nonconceptual content can be bracketed off such that one could claim, for instance, that contents are compositionally nonconceptual and yet also hold that they are attributionally conceptual. Whether contents are compositionally nonconceptual and whether mental states are attributionally nonconceptual are two separate debates that are characterised by different problems and concerns. The debate over compositionality is mainly concerned with what is meant by 'concepts'; and while this question will clearly play some role in the debate over content attributions, the real concern here is what is meant by 'conceptual abilities', or what is to count as a conceptual ability.

To get a better view of the debate over the compositionality of contents, we could examine the distinction between Fregean and Russellian contents. As discussed previously in Chapter Two, representational contents are mental entities—referring is something that a mind does. There is a question of how the mind refers, or what the mental act of referring consists of, and this is where disagreement about the compositionality of contents begins. It begins with a question about whether the mind puts us in direct contact with the objects and properties of the external world that are the objects of our mental acts, or whether the contents of a mental act are some sort of abstract entities that stand for the objects and properties of the external world. The Russellian view of contents holds that a content is a proposition that has as its constituents the very objects and properties that are the content of the mental act. So, the thought that 'the cat is black' has as its constituents both the cat and the property blackness.

In opposition to this, the Fregean view of contents holds that a mental content grasps a Thought. Thoughts have as their constituents concepts—senses or modes of presentation, which pick out some way for the world to be. These could be thought of as individuated intensionally. A classical Fregean would hold that a Thought is an abstract entity that exists independently of its being the object of a mental act; neo-Fregeans, on the other hand, would reject Frege's Platonic view of Thoughts opting

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[3] Evans is often ambiguous about whether it is contents that are nonconceptual or mental states. Evans seems to claim that nonconceptual contents are compositionally different from conceptual contents in his (1982): 227.

instead to claim that a Thought is a property of a mental state to refer to objects and properties of the external world.[5] I believe that the difference between classical Fregean and neo-Fregean view of Thoughts is reflected in the general distinction between the compositionality of contents and the attribution of contents. For a classical Fregean it matters what Thoughts-as-abstracta are composed of—if contents were thought to be compositionally nonconceptual, then the classical Fregean would worry that Thoughts are not composed of Fregean senses. The neo-Fregean, on the other hand, may set this worry aside. If Thoughts are properties of mental states, then the neo-Fregean should not worry about what Thoughts are composed of, simply because properties are not composed of anything. The neo-Fregean's claim would simply be that some contentful mental state is conceptual if it is required of the subject that they must possess some conceptual capacity in order to be in a mental state with that content. And this is just what the debate about the attribution of nonconceptual contents is concerned with. I will now briefly review the standard Fregean view of concepts before considering a neo-Fregean view of conceptual abilities.

There is a fundamental distinction between Russellian contents that are thought to be composed of objects and properties of the external world and Fregean contents that are composed of concepts.[6] The standard view of concepts follows in the service of the (classical) Fregean view of contents. This view of concepts is that a concept is an abstract entity that can be the constituent of a Fregean Thought (which I will discuss further in the next section). On the classical Fregean view, if a subject believes that 'snow is white', that person grasps a Thought, which is an abstract entity that is either true or false and is composed of concepts. The belief that 'Snow is white' includes the concepts *snow* and *white* as constituents of that belief. On Russell's view, on the other hand, contents are not composed of concepts, rather they are constituted by the objects and properties that they represent. One might then argue that Russellian contents are compositionally nonconceptual, meaning that they are not composed of concepts, while

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[4] See, for instance, Crane (2001): §45; McDowell (1994); and Stalnaker (2003).

[5] I owe much of this and the following discussion to Keith Hossack.

[6] This contrast between Russellian and Fregean contents is not meant as an exhaustive account of contents, but rather as an illustration of a general distinction between theories of contents. Other theories of contents hold that contents are composed of sets of possible worlds, while still others hold that indexical contents may form yet another type of content. The distinction that I am pointing to would quantify over these theories of contents as, on the one hand, possible world's theories would be compositionally nonconceptual like the Russellian view, while on the other hand indexicality would need to be accounted for on any theory of content. For more on general theories of content, see Siegel (2005).

Fregean contents are.[7]

This, however, is orthogonal to DeBellis' discussion. DeBellis' claim that the contents of musical perception are nonconceptual would best be understood as part of the attributional debate. His argument (broadly) is that a subject does not need to possess any music-theoretic concepts in order to be in a mental state with a certain musical content. To put this argument in the language of the compositional-attributional distinction, we must read this as the claim that a subject does not need to possess any music-theoretic conceptual abilities. DeBellis seems unconcerned about the compositionality of mental states. Rather he is concerned about whether a subject needs to possess a certain psychological capacity in order to be in a mental state with a certain content. Indeed, DeBellis defines a concept as a 'certain psychological capacity, an ability to have beliefs (and thoughts generally) in which one grasps a particular mode of presentation'.[8] It seems clear that DeBellis is making an attributional argument about the contents of musical perception.

My discussion of arguments for nonconceptual contents in the following chapters will then be concerned with how contents can be attributionally nonconceptual. I will have little to say about compositional questions about contents. In this chapter I will first try to make explicit the contrast between concepts and conceptual abilities that I think underwrites the compositional-attributional distinction. I will start by giving a standard account of what concepts are, and from this vantage point will offer a suggestion for how we should think about conceptual abilities. As said above, the central question in the attributional debate is to decide what is to count as a conceptual ability.

5.2 *Concepts*

If contents can be nonconceptual, then it would be helpful to know what is meant by 'concept' such that some content can seemingly lack this. On neo-Fregean accounts, concepts are abilities to think certain thoughts such that, if a subject has the belief or

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[7] Incidentally, one could similarly claim that the possible worlds view of contents is compositionally nonconceptual—possible worlds are simply not constituted by concepts. For a discussion of the constitutive elements of possible worlds contents, see Lewis (1986) and Stalnaker (1984).

[8] DeBellis (1995): 32.

makes the judgment that *x* is *F*, then typically they must possess the concept for *F*.[9] A subject who possesses the concept *F* should then be able to employ this concept in a wide variety of thoughts about *F*. A subject should be able to think that *a* is *F*, that *b* is *F*, and perhaps even that *c* is *not-F*.[10] It has been argued by some that a subject cannot be thought to possess a concept unless some degree of generality can be shown to hold for their use of that concept, which is what Evans calls the Generality Constraint: 'if a subject can be credited with the thought that *a* is *F*, then he must have the conceptual resources for entertaining the thought that *a* is *G*, for every property of being *G* of which he has a conception'.[11] Insofar as two beliefs have the same truth value, those beliefs must employ the same concepts.

Concepts can then be individuated in terms of their cognitive value. The common Fregean way of putting this thought is to say that, if it is possible to know that *a* is *F* while also doubting that *b* is *F*, then *a* and *b* do not have the same cognitive value, thus *a* and *b* would be different concepts. So, for instance, if a subject uses two words to refer to the same thing—as when a subject understands that the names 'Cicero' and 'Tully' refer to the same person—then the subject will not acquire any new piece of information if the name 'Cicero' is used in a sentence to replace the name 'Tully'. If I were to say, 'Cicero likes ice cream, and Tully does, too,' then the subject who understands that 'Cicero' and 'Tully' refer to the same person will believe that I have uttered nonsense—in effect, the subject would understand me as having said that '*a* likes *F* and *a* likes *F*, too'. On the other hand, a subject who does not know that 'Cicero' and 'Tully' refer to the same person would think that I have said something informative—they would have believed themselves to have learned that something holds in common between Cicero and Tully.

The debate over the compositionality of contents would then be concerned to show whether or not some mental state must have concepts as its constituents. However, as

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[9] See for instance Evans (1982); Geach (1957) and Peacocke (1992a). The reader will notice that it is here that the standard account starts to slide from a question of compositionality to attribution. 'Possessing a concept' may be read as having a certain conceptual ability.

[10] There is some debate over whether the possession of a concept necessarily entails the understanding of that concept's negation. While I do not have the space to examine this debate in any detail, I will assume that the possession of the concept *F* does entail some understanding of the negation of this concept in that a subject should, on the basis of possessing *F*, be capable of thinking, in regard to *F*, that some object *x* fails to be *F*. Cf. Geach (1957): §7.

suggested above, the compositionality of contents is a different issue from the attribution of contents. The question of whether some content is composed of concepts or not is independent of whether or not a subject must possess some conceptual ability in order for that subject to be in a mental state with that content. Consider the thought that 'snow is white'. In order for a subject to believe that snow is white they must possess the ability to think that snow is white, and this is a requirement that is independent of whether or not the content of this mental state should be described as a relation to a (conceptually composed) Fregean Thought or a (nonconceptually composed) Russellian proposition. Before we can consider what it would mean for some content to be attributionally nonconceptual, we should consider what is meant by a 'conceptual ability'. I will return to the attributional arguments for nonconceptual content in the following chapter.

5.3 *Are Conceptual Abilities Linked with Linguistic Abilities?*

Some philosophers claim that conceptual abilities are closely linked with linguistic abilities. Consider a claim that Bermúdez argues for, which he calls the *Priority Thesis*: 'conceptual abilities are constitutively linked with linguistic abilities in such a way that conceptual abilities cannot be possessed by non-linguistic creatures'.[12] This could either mean that what it is to have mastered the use of a particular concept is exhausted by mastering the use of a particular linguistic term, or it could mean that the possession of some linguistic ability is an essential condition of the mastery of some concept.[13] His reason for accepting this thesis is that one thing that concept-using creatures are (in principle) able to do is to provide justifications for inferential transitions used in thought, but, he claims, the ability to provide such justifications is a paradigmatically linguistic ability.[14] Creatures that lack any ability to think propositional thoughts, and therefore lack the ability to provide justifications for inferential transitions, must also

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[11] Evans (1982): 104. Failure to meet this constraint may still result in the subject's being in a mental state with content, however whatever content this mental state might be said to express does not, on Evans' view, amount to the subject's being in a *belief* state, where to have a belief is dependent upon having concepts. Rather than having a belief, the subject might be described as possessing 'tacit knowledge'. See Evans (1981) for more on the distinction between belief and tacit knowledge.

[12] See Bermúdez and Macpherson (1998): §7; see also Bermúdez (1998), (2003a) and (2003c). The Priority Thesis is a general principle linking conceptual abilities with language possession, which may be formulated in ways differently than Bermúdez and Macpherson formulate it. Philosophers who do link conceptual abilities with language possession will accept some version of the Priority Thesis.

[13] Cf. Bermúdez (2003b): §1.4.

[14] See Bermúdez and Macpherson (1998).

lack concepts. McDowell also defends a very strong link between conceptual abilities and language possession in his (1994). As he says: 'It is essential to conceptual capacities ... that they can be exploited in active thinking, thinking that is open to reflection about its own rational credentials'.[15]

Why should we accept this link between conceptual abilities and linguistic abilities? While some philosophers do accept this strongly linguistic notion of conceptual abilities, I find that when taken in this way the debate over nonconceptual content becomes rather uninformative. If conceptual abilities are understood in this largely linguistic way, then the claim that the contents of perceptual experience are nonconceptual is just the claim that these contents are not linguistic. And this is unsurprising—subjects are not required to possess *linguistic abilities* in order to be in a certain contentful mental state because perceiving is not a linguistic activity. It would be more interesting and informative if it could be shown that the contents of perceptual experience are nonconceptual in a more robust sense, one where the notion of a conceptual ability is not so limited. While no right-minded philosopher would deny that there is some link between linguistic abilities and conceptual abilities, on my view conceptual abilities need not be linked with linguistic abilities. A subject's possession of a linguistic ability surely counts as strong (indeed, undeniable) evidence for that subject's possession of some conceptual ability, but we should resist the thought that a subject's lack of a linguistic ability should count as evidence for their lack of a conceptual ability. That is surely too strong. As Margolis and Laurence point out, there are more kinds of concepts than just the lexical concepts.[16] The Priority Thesis bothers me, so I will spend a bit more time on it here. I will briefly examine two possible interpretations of the Priority Thesis—offering both a strong and a weak interpretation—and will provide reasons for rejecting both.

On a strong interpretation of the Priority Thesis, to have a conceptual ability is essentially to have the use of a word in a language.[17] But this would just be too strong as there must surely be some content-bearing states of mind that subjects can be in that require the subject's possession of a conceptual ability but does not require the possession of a linguistic ability. Consider, for example, the sort of non-linguistic conceptual abilities that seem to be demonstrated by a subject's skill in spatial

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[15] McDowell (1994): 47. See also Crane's criticisms of this strong view in his (2001): 153-154.

[16] Margolis and Laurence (1999b). See also their (2005) for an overview of the debates surrounding concepts.

reasoning. The sort of mental abilities that a subject must employ in order to place, say, differently shaped blocks into their appropriately shaped slots can be demonstrated by children at an age where the reasoning process required for this task greatly outstrips their possession of linguistic skills.[18] If spatial reasoning is truly a case of *reasoning*, rather than simply a misnomer, then it must be conceptual. And yet there do not seem to be any specifically linguistic abilities that a subject must possess in order to be attributed spatial reasoning skills. If spatial reasoning is conceptual, then, again, the conceptual abilities employed in spatial reasoning must be available to a subject non-linguistically. If this is correct, then the strong interpretation of the Priority Thesis cannot be right as there must be some sort of conceptual abilities that do not require language.[19]

Another case of a subject's possession of some non-linguistic conceptual ability that we might consider would be a musician's ability to perform a piece of music. Musical performances are certainly highly refined skills that require much physical dexterity and years of training. But they are also very intellectual feats. Throughout a performance, musicians are faced with many choices and decisions—on how to interpret a certain melody in order to anticipate a modulation, or how to articulate a melody, or exactly how to time a rhythm to achieve the greatest effect. Performance requires much thought, planning and deliberation. These are decisions that a musician must often make while performing 'in the moment', as it were. Musicians often describe what they are thinking as simply 'hearing in my head what I ought to do', and the options available to a musician will be limited by what has come before. Crucially, these are very thoughtful activities, but musicians do not think in language. It is not necessary to formulate a decision in a linguistic expression before one translates it into the action of performing. Indeed, the sort of decisions that musicians make appear to be

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[17] This appears to be the interpretation that Bermúdez favours. See his (1998) and footnote 3 below.

[18] For an opposing view, see Bermúdez (1998) and (2003a). Also, there is an objection lingering here that spatial reasoning is simply a case of knowing how, where what is required for some conceptual ability is knowing that. I will consider this objection shortly.

untranslatable into language. If musical thinking were to count as conceptual thought, then clearly thought of this kind must require the subject's possession of conceptual abilities that are not exhausted by or reducible to some linguistic ability.[20]

A weaker interpretation of the Priority Thesis might hold that only creatures that are capable of possessing linguistic abilities are capable of possessing conceptual abilities. On this view, spatial reasoning could well be a conceptual ability, but it is one that only a linguistically able creature could have. This still seems unfounded. Consider the case where two creatures are able to do similar things, where one creature is a language-user, call her *L*, and the other creature is not, call it *N*. If *L* and *N* are both able to do *x*, and *L*'s ability to do *x* would normally count as evidence for *L*'s possession of a conceptual ability for doing *X*, then why should we think that *N*'s ability to do exactly the same thing, *x*, does not count as evidence for *N*'s possession of *X* (or some conceptual ability like *X*) as well? Some animals can exhibit rudimentary forms of spatial reasoning. If some kind of conceptual ability is required to explain spatial reasoning for language-using subjects, where this is a distinctly non-linguistic conceptual ability, then why should we think that a non-language-using creature's spatial reasoning abilities would require some different explanation? Sameness of ability must act as evidence for sameness of kind of thought. [21]

The question is, in what cases should conceptual abilities be attributed? If we accept

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[19] Similarly Crane (2001:153) argues that a strong conception of the link between concepts and language would seem to deny any sort of rational thought to non-linguistic creatures. While I think this is right, and while I too think that this would be a reason to reject a strong conception, I find it more worrying that such a conception could not account for the sort of non-linguistic thought exhibited by subjects engaged in spatial reasoning. Someone who was moved by the thought that we must account for the rational skills of non-linguistic creatures should equally be moved by the thought that we should also seek to account for the non-linguistic skills of language-using creatures as being within the scope of rational thought. Furthermore, even if one disagreed with Crane's assumption—that non-linguistic creatures have rational thoughts—one would still need to account for spatial reasoning in a way that does put it within the scope of rationality. Also, certain passages from Geach (1957) suggest that he too would have rejected the strong interpretation of the Priority Thesis. See for instance §§5, 7 and 11.

[20] For more on what musical thought might consist of, see my (2006).

that the possession of some conceptual abilities are independent of a subject's possession of an accompanying linguistic ability, then this seems to open the door for non-language-users to be concept-users. Language-users are able to demonstrate abilities to perform actions ranging from the simple to the extraordinarily complex—from simple instances of spatial reasoning to performing Stravinsky's *Rite of Spring*. As argued above, some of these abilities seem to require thought, planning and deliberation, and this seems to require that the subject possess some (non-linguistic) conceptual ability. If a language-user's demonstration of some ability were to count as evidence for their possession of some non-linguistic conceptual ability, then what are we to say about non-language-using creatures that may be able to demonstrate the same abilities? Clearly a creature's possession of some language certainly is the best evidence for that creature's being a concept-user, but it cannot be enough to say that some creature is not a concept-user simply because they lack a language.

Perhaps it would be objected that the cases I am describing are simply cases of 'knowing how' versus 'knowing that'. [22] While my ability to demonstrate spatial reasoning might act as evidence for my possession of some conceptual ability—as my behaviour demonstrates a knowledge that can be expressed and justified in propositional thought—then I can be said to 'know that …' while an animal's spatial reasoning skills simply affords them some knowledge-how. Gilbert Ryle formulated the knowing how-knowing that distinction to argue against what he referred to as the 'intellectualist legend'. Ryle's objection is that when a subject does something skilful, they do not do two things—the physical act of executing the skill and a mental act of deliberation. As Ryle says, '"thinking what I am doing" does not connote "both thinking what to do and doing it"'.[23]

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[21] Of course, this would not be to argue that *L* and *N* could be attributed the possession of the same conceptual ability. For, if *L*'s possession of the ability to do *x* is accompanied by some linguistic ability, then to that extent it may be arguable that *L* and *N* do not possess the same conceptual ability, or perhaps do not possess the conceptual ability to the same degree. In addition, perhaps *N*'s ability to do *x* also does not allow *N* to make certain inferences that *L* is able to make. Either way, what is important is that there is, at the very bottom, some conceptual ability that is common to both subjects which is evidenced by their ability to do *x*. Geach (1957) seems to think that conceptual abilities are tied to linguistic abilities, but that they cannot be possessed by degrees. Rather, as he says, 'a man who can do different things with his concept has a concept that is to that extent different from the other fellow's' (36). So if a language-user's ability to do *x* is accompanied by a linguistic ability and a non-language-user's ability to do *x* is not, then on Geach's account, to that extent these subjects must possess different conceptual abilities. The important point, however, is that if *L*'s ability to do *x* counts as evidence for her possession of a *non-linguistic* conceptual ability, then there should be no reason in principle why non-linguistic creatures could not also possess non-linguistic conceptual abilities.

[22] On the distinction between *knowing how* and *knowing that*, see Ryle (1949), Ch. 2.

[23] Ryle (1949): 32.

However, Ryle was not concerned with what it is to possess a conceptual ability. Rather, Ryle's use of the knowing how-knowing that distinction was to argue against the thought that some *propositional knowledge* could be attributed to a subject on the basis of their knowing how to do something. Ryle attempted to draw a distinction between the demonstration of the possession of some propositional knowledge and what could be called 'practical knowledge'. Someone who knows how to ride a bicycle may possess some knowledge-how—specifically how to ride a bicycle—but, as Ryle argued, the possession of this knowledge-how does not afford the subject any sort of knowledge-that, which is just to say that there is no propositional knowledge that a subject has just by virtue of their knowing how to do something. This may be true—I do not wish to question it here—but Ryle's argument itself does not show that conceptual abilities are restricted to cases of knowing that. If one wanted to use Ryle's argument to show this, then one would have to accept the strong interpretation of the Priority Thesis: if one accepted the claim that conceptual abilities are strongly linked with linguistic abilities, then there would be no need to attribute conceptual abilities to subjects that possess some knowledge-how. The reason being that the knowing how-knowing that distinction claims that a subject who knows how without knowing that does not thereby possess any propositional knowledge; on the strong interpretation of the Priority Thesis, conceptual abilities may only be exercised in propositional thought; therefore a subject who knows how without knowing that does not do anything conceptual. If only propositional thought is conceptual, and knowing how is not a case of propositional thought, then knowing how is not a case of conceptual thought. So there would be no need to attribute any conceptual abilities to a subject in order to account for their knowledge-how.[24] But I have already given reasons above for rejecting the strong interpretation of the Priority Thesis. Unless one accepts the strong view of the Priority Thesis, the knowing how-knowing that distinction does not show anything about the possession of conceptual abilities.

Once we reject the strong interpretation, then we are open to question whether a subject's knowing how indeed is sufficient for that subject to be attributed the possession of some (non-linguistic) conceptual ability. I would suggest that we can: a subject's knowing how to do something might be described as a very complex ability that would need to tie in many different sorts of abilities, some recognitional and some

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[24] Whether Ryle held this view or not is not my concern here, however I have found no textual evidence to support this.

practical, and that we should think of this very complex network of abilities as itself being a conceptual ability.

5.4 *Conceptual Abilities*

So, what is a conceptual ability on this view? By widening the scope of conceptual abilities to allow for subjects to possess these non-linguistically, we can account for those abilities that a subject may demonstrate that seem to require some thought, reasoning or judgment though that subject lacks any special linguistic ability associated with these cognitive tasks. Tim Crane also defends a non-linguistic account of concepts, about which he says,

> To have a concept, on this view, depends on the kinds of recognitional, inferential, and other capacities one can exercise in one's thinking. Not all these capacities depend on one's mastery of a language. The suggestion is that one could have, for example, a capacity for recognising a certain kind of animal X, and this capacity is something one also employs in reasoning about animals about this kind. One need not have a word for the kind of animal in question, but one has enough of an idea of what the thing is to qualify as having a concept of X.[25]

A conceptual ability is a power to think thoughts of a certain kind. To borrow a definition from Crane, on this view, a conceptual ability is a 'recognitional or inferential ability that a subject can exercise in thought'.[26] These may be constituted of a complex network of other inferential or recognitional abilities that the subject may also possess. A conceptual ability is a specific set of inferential or recognitional abilities that act together and are exercised in thinking thoughts of a certain kind. The ability to think the thought that 'snow is white' requires a conceptual ability for the thinking of thoughts about *snow* and about *whiteness*. Conceptual abilities can be individuated by slightly modifying the standard account—the conceptual abilities *F* and *G* are identical if any thought the thinking of which requires the conceptual ability *F* can be replaced by the conceptual ability *G* with no loss of cognitive value. More specifically, conceptual abilities would be individuated by referring to the sort of inferences or recognitional abilities that the subject is able to demonstrate using that ability. One way of illustrating what would be considered a conceptual ability on my view would be to examine what constitutes a real case of knowing how. Our discussion of the knowing how-knowing that distinction is instructive—one kind of conceptual ability would be

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[25] Crane (2001): 153.

[26] Cf. Crane (2001): 153.

the sort of things that a subject must be able to do in order to be attributed a case of knowing how. I will explain.

It seems reasonable to me that knowing how to *x* requires an additional piece of knowledge, namely *knowing when* to *x*, or put it another way, knowing how to *x* requires knowing when doing *x* is appropriate for the situation—it requires knowing that 'now is a good time to *x*', or 'now is the appropriate time to *x*'. Think of it this way: we would not attribute to a subject any sense of knowing how to *x* if they simply did *x* all the time, indiscriminately, like the way a small child always says 'No'. Though the child's actions might sometimes succeed—sometimes the child is in the right situation where 'No' is the correct answer—we would think that such success was merely accidental. We would not ascribe to the child any real sense of knowing how to use the word 'No' on this basis.

Attributing knowledge-how to a subject requires attributing to them a tacit understanding of knowledge-when. The child knows how to use the word 'No' only if they know when the use of the word is appropriate. At least part of what it is for a child to be attributed some understanding of the use of 'No' must be for them to recognise when they are in a situation where saying 'No' is within the range of actions appropriate for the situation. For a child to know how to use 'No' must require their knowing when 'No' is appropriate, and this must in turn require their knowing that they are in the appropriate situation.[27] And the important point about knowing when is that these have correctness conditions.[28] In order to be attributed a real case of knowing when, the subject must understand the conditions of correctness or appropriateness of their action. For this reason, it would seem that knowing when must require that the subject possess some recognitional capacity for these situations. My point is that the sort of thing that constitutes knowing when is just what constitutes one kind of conceptual ability.

Ryle offers the example of a parrot that has learned to utter a certain phrase. That phrase when uttered at the right moment might be quite humorous. When a person makes this utterance in the right moment and their use of the utterance is humorous, we may ascribe to that person a sense of humour, but were the parrot to make the same utterance, even in the right situation, we would not attribute to the parrot a sense of

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[27] However, the child who has learned to use 'No' in this way could not be attributed understanding that 'No' means *No*—the child may not know what 'No' means. Perhaps it may be the case that the child has learned to recognise that they are being asked a question, and that such circumstances are the appropriate times where one might say 'No', but this does not show that the child has learned the use of 'No'. Knowing that 'No' means *No* requires something more.

humour.[29] Of course this is right, but importantly we would not attribute a sense of humour to the parrot *because* it does not know *when*—the parrot lacks the ability to recognise when it would be appropriate to make the utterance. We attribute a sense of humour to the person who uses the utterance because their use of the utterance in the right moment acts as evidence for their being witty. Unfortunately for Ryle, it does look like an intelligent agent does two things: they make a judgment of the appropriateness of their actions and then execute the action. Both the parrot that has learned to utter a phrase and the child that indiscriminately says 'No' have learned to do something—they have learned *how to make an utterance*, which is just to say that they have learned how to execute an action—but they have not learned *how to use the utterance*. It is this further knowledge that must be required if the child (or the parrot) is to be attributed with a real case of knowing how.

This way of characterising conceptual abilities then gives us a way of understanding how contents can be nonconceptual in this sense. Some mental state is (attributionally) conceptual if a subject cannot be in an intentional state of a certain kind unless they possess some conceptual ability that characterises the content of that mental state. On the other hand, some mental state is nonconceptual iff a subject can be attributed an intentional state of a certain kind that does not require the subject's possession of any special conceptual ability. Applying this to the case of colour perception, the claim would be that there are no specific inferential or recognitional abilities that a subject must possess in order to be in a mental state that represents some object as being some specific shade of colour. The debate over nonconceptual content becomes an interesting and substantive debate when one understands concepts as the sort of non-linguistic recognitional abilities that I have described above. It is a debate about what is required in order to be in a certain content-bearing mental state—that is, whether a subject must possess some non-linguistic conceptual ability in order to be attributed some contentful mental state.

One thing to notice about the attributional debate is that this is a debate about whether being in a certain representational state requires that the subject possess some special conceptual ability. We might interchangeable describe these as states with nonconceptual content or as nonconceptual mental states. As Crane says, the distinction between conceptual and nonconceptual really is 'a distinction between kinds of

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[28] I owe this suggestion to Era Gavrielides.

[29] Ryle (1949): 33.

intentional states or acts'.[30] A conceptual mental state is one where a certain (conceptual) condition must be fulfilled in order for a subject to be in that mental state, whereas nonconceptual mental states carry no such restrictions. These nonconceptual mental states are representational states—mental states having a representational content—so can also be thought of as states with a nonconceptual content. Crane comments that the term 'nonconceptual content' might fit more naturally in the debate over the compositionality of contents, while the term 'nonconceptual state' more accurately captures the sense in which this is a debate about the attribution of mental states. However, Crane does use these terms interchangeable to apply to the attributional debate, and I will follow him in this usage.

5.5 *The Claims of Nonconceptualism*

What sort of role can nonconceptual content play in perceptual experience? Existing literature makes different sorts of claims on this point. There seem to be three main differences in the way that a theorist will argue for nonconceptual content. Some argue that contents are nonconceptual only subpersonally; some argue that contents are nonconceptual only when they can be contrasted with conceptual contents; and some argue that nonconceptual contents are autonomous of conceptual contents. These three claims might be seen as differing as to their degree of commitment to nonconceptualism, or as describing three independent claims about nonconceptual content. As discussed above, Crowther suggests that debate over nonconceptual content often gets in a muddle when claims about the compositionality of contents are mistaken for claims about the attribution of contents.[31] Similarly, I suggest that this debate can also get into a muddle when arguments about one kind of claim are mistaken for arguments for some other kind of claim. It may be helpful to distinguish between these three distinct claims—in the remainder of this chapter I will attempt to make clear the differences between these.

The first sort of nonconceptualist claim that some philosophers defend is what has

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30 Crane (2001): 152.
31 See his (2001): 21-24.

been called *informational* or *subpersonal contents*.[32] The claim here is that a subject's perceptual system can be described as having contents at varying stages along the causal process of that system, and that these subpersonal informational states carry content nonconceptually. For instance, light splashed across the retina is encoded into a neural signal—this neural signal can be described as having informational content. Informational contents are contents that hold at the level of the subpersonal operations of a subject's perceptual system. These contents are nonconceptual in that there are no concepts that the subject must possess in order for their visual system to encode the visual information in a neural signal. The second sort of claim of nonconceptual content is what I call *singular-personal contents*. On this view, some features of experience are represented nonconceptually, but this requires some conceptualisation. This is a view that Peacocke once held, though he has since retracted it.[33] The distinguishing features of this claim are that a mental state could only have a nonconceptual content if the subject is generally able to be in mental states with conceptual contents, and that a description of a subject's mental state captures the way in which experience is for the subject at a personal level. On the second point, these contents describe the conscious level of experience—they are not subpersonal in the way that informational contents are. On the first point, it is claimed that it would be pointless to describe a creature as being in a mental state with nonconceptual content if that creatures is not able to be in mental states with conceptual contents. Only creatures that are capable of conceptual thought can be attributed contents on this view. Theorists who take this view reject the Autonomy Thesis—the claim that nonconceptual content is autonomous of conceptual contents. (I will say more about this shortly.) It is thought that, at the very least, the possession of the first-person concept is required in order to be attributed nonconceptual contents. The final claim to consider is what I call the claim for *autonomous-personal contents*. Here, the claim is that a subject can be attributed being in a purely nonconceptual belief (or belief-like) state, which is in no way dependent on the subject's possession of any conceptual ability or conceptual contents. Claims of this sort would then be an acceptance of the Autonomy Thesis.[34]

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[32] Evans (1982). McDowell (1994: 121-123) also seems to accept this when he comments on contents that may hold in common between humans and animals. So strictly speaking McDowell does accept some kind of nonconceptual content (informational states) but for him all consciously accessible mental states must be conceptual, or 'within the realm of spontaneity'.

[33] Peacocke held this view in his (1992a). Peacocke retracted this view in his (2003) as a result of criticisms made by Bermúdez (2003c).

[34] See Bermúdez (1998), (2003a), (2003b), and (2003c); and Bermúdez and Macpherson (1998).

Theorists defending this claim also hold that these contents describe the way in which experience is for a subject at the conscious level.

These represent three different kinds of claims about content that the defenders of these views all describe as nonconceptual. The main difference between claims about singular-personal contents and autonomous-personal contents is that these views differ on their acceptance of the Autonomy Thesis. There is one general distinction that can be made between claims about informational states on the one hand and claims about both the singular-personal and autonomous-personal states on the other: theories of nonconceptual content that make claims of the latter sort are thought to be referring to the contents of introspectible states. When one reflects introspectively on one's perceptual experience, what one finds are the everyday objects that one perceives in the world; what one does not find are informational states. So theorists who generally make claims about the contents of introspectible states are either making claims of the singular-personal kind or autonomous-personal kind. That being the case, it is possible to combine a theory of informational contents with either of the other two views. The table below illustrates the way in which these views differ.

	Conscious Experience	Autonomous
Informational Contents	No	Yes
Singular-personal Contents	Yes	No
Autonomous-personal Contents	Yes	Yes

Table 5

5.6 *The Contents of Informational States*

This is the notion of content that can be ascribed to the operations of a subject's perceptual system. The task of, say, a subject's visual system could be described as a computational system whereby information about the external world is retrieved and encoded into an electro-chemical signal that is then sent to the brain's visual cortex for decoding. At various stages within the visual system—between the encoding of information that goes on in the eye and the decoding of that information that goes on in the visual cortex—the visual system can be described as possessing representational

contents. Specifically, the electro-chemical signal could be described as representing the objects and properties of the external world that it is the visual system's task to make available to the perceiver. If it is the job of the visual system to track certain changes in the external world that are visually available to a subject, then it is via these informational states that the visual system operates.

On this model, the content of perception is constituted by an internal informational state that represents the world as being a certain way. The question then is, what is an informational state? In Evans' writing on this point, what he seems to have in mind regarding informational states is a fairly mechanical function that happens somewhere early on in the perceptual system:

> A certain mechanism produces things which have a certain informational *content*.... The mechanism is a mechanism of information storage, because the properties that figure in the content of its output are (to a degree determined by the accuracy of the mechanism) the properties possessed by the objects which are the input to it. And we can say that the product of such a mechanism is *of* the objects that were the input to the mechanism when the product was produced. Correspondingly, the output is *of* those objects with which we have to compare it in order to judge the accuracy of the mechanism at the time the output was produced.[35]

For an illustration of such a mechanical informational state, think of the particular pattern of electrical signals sent from the eye to the brain when a subject is looking at a cherry tree. This electrical signal, with all its intricate fluctuations, stands for or represents the visual properties of the tree that the visual system is properly sensitive to. If the tree were a different size, shape, or colour—say, if it was a beech—then the signal too would differ in proportion to encode the information of looking at a beech. All that is needed for this to act as the input to an experiential state is for the signal to be decoded in the right way.

Such content is truth-assessable—'it permits of a non-derivative classification as *true* or *false*'[36]—and functions as both the input to the motor system as well as the reasoning system. Perceptual experience represents correctly when the products of the mechanism—the encoded informational signal—are *of* the object that serve as input when that object is presented to the visual system, which is a causal relation, and when the properties of the informational state co-vary with the properties of the object.

It should be noted, however, that these informational states are not the sort of mental intermediaries that would be the objects of direct perceptual awareness on a sense-

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[35] Evans (1982): 124-5.
[36] Ibid.: 226.

datum account of perception. Evans is emphatic that informational states are not the direct object of perceptual experience on his view, rather the world is: '...in a state of information on the basis of which a subject may ascribe to himself an experience as of seeing, say, a tree, what *he* observes (if anything) is only the tree, not his own informational state'.[37] One key feature of this sort of content is that it is 'subpersonal'. If the end result of a perceptual system is to make the objects and properties of the external world available to a subject in perceptual experience, and the operations of the visual system causally precede first-person perceptual experience, then whatever content can be attributed to these informational states, that content could be described as 'pre-experiential' or, as Crane says, as not 'phenomenologically salient'.[38] When we introspectively reflect on our perceptual experience and recognise that what is presented before us are tables, chairs, trees and so on, we find that the content of our perceptual experience is not populated by informational states, but rather by tables, chairs, trees and so on. However, such subpersonal informational states must be working, as it were, in the background to first-person experience already.

In line with what has been presented above, contents on Evans' view are representational in that there is a mental state that represents the world as being a certain way. These states are nonconceptual in that conceptual abilities simply do not play any role in the encoding of, say, the electrical signal in the optic nerve. To understand this better, we should consider how Evans thought of the relation between perceptual experience and judgment—between nonconceptual informational states and conceptualised beliefs—where he says:

> Judgments *based upon* such states necessarily involve conceptualisation: in moving from a perceptual experience to a judgment about the world..., one will be exercising basic conceptual skills.... Although the subject's judgments are *based upon* his [nonconceptual] experience..., his judgments are not *about* the informational state. The process of conceptualisation or judgment takes the subject from his being in one kind of informational state...to his being in another kind of cognitive state.... So when the subject wishes to make absolutely sure that his judgment is correct, he gazes again *at the world*...; he does not in any sense gaze at, or concentrate upon, his internal state. His internal state cannot in any sense become an *object* to him. (He is *in* it.)[39]

Informational states are the internal states upon which judgments are based—they are bits of encoded information that track features of the external world. They are not themselves open to self-scrutiny, rather they are the medium which brings a subject into

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[37] Ibid.: 230.

[38] Crane (1992b): 139. In reference to this description, Crane also cites Evans (1982): 104 fn. 22; Cussins (1990); and McGinn (1989). See also Dretske (2003).

[39] Evans (1982): 227.

perceptual contact with the world, though a medium of representational content that is transparent to the subject. It is this level of informational content that any adult human would share with any other creature whose perceptual system is similarly constituted.

However, to say that informational states of this sort are nonconceptual seems rather trivial—this is just to say that the process of encoding, e.g., the electrical visual signal is not a concept-using system, which is hardly a surprising claim. If the claim is that informational content does not require that a subject should possess any conceptual ability for the representation of *p* in order to be in an informational state that represents that *p*, then this appears to be little more than the claim that some perceptual system does not represent its contents by means of concepts. A subject simply does not possess any conceptual abilities at this primitive informational level. Furthermore, we could say the same regarding the compositional arguments for nonconceptual content, that, if concepts are the constituent elements of thought, then it is a simple observation that thought does not occur at this primitive informational-level, so contents at this level need not be constituted out of concepts. This is the weakest form of the nonconceptualist's claim—Claim1. What would be a stronger claim would be that these informational states partly constitute a subject's conscious level of experience. The question, then, is whether Evans can be interpreted as making a stronger claim (Claim 2 or 3).

On my reading of Evans, this point is somewhat unclear. Much of Evans' discussion of nonconceptual content is in reference to these informational states, states which he adamantly says are not the objects of a subject's personal-level experience. As Evans says, the contents of informational states 'are not *ipso facto* perceptual *experiences*—that is, states of a conscious subject.'[40] However, contradicting this, Evans also often talks of subject's being aware of perceptible differences in experience nonconceptually, as when he offers the argument for belief-independence.[41] However, examining this point further would take us too far afield. Evans is at least making a claim about the contents of informational states, and we can leave the discussion at that.

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[40] Ibid.: 157. McDowell (1994: 47-49) makes much of this.

[41] Ibid.: §5.2. Bermúdez and Macpherson (1998) note a similar tension within Evans' work, which they claim pulls Evans between a naturalist and a neo-Kantian view of perception.

5.7 *Singular-Personal Contents*

Mental states, on this view, could essentially be thought of as 'mixed'—part of the mental state is nonconceptual, but some degree of conceptualizing is also required. The claim here might either be that there are some mental states that are fully nonconceptual and some that are fully conceptual, or the claim might be that there is some mental state such that it is partly conceptual and partly nonconceptual. On the first alternative, a subject is being attributed two separate content-bearing states, one a conceptual belief state the other some kind of nonconceptual state. On the second, a subject is being attributed one content-bearing state, and that state may be conceptual or it may not, depending on the cognitive abilities of the subject. Between these alternatives, the point would be to decide whether conceptual contents and nonconceptual contents are different in kind (as it would be for Evans) or the same in kind (McDowell).[42]

However contents are envisioned as being divided up, a general remark that holds for either claim is that theorists who hold that mental states can be nonconceptual in this way argue that, while there can be content-bearing states that are largely independent of a subject's conceptual capacities, these nonconceptual states can only exist in creatures that are generally concept-users. Thus, it would only make sense to talk about mental states that are nonconceptual for a subject who is able to be in mental states that are conceptual.[43] And this amounts to a rejection of the Autonomy Thesis. The Autonomy Thesis, as defined by Bermúdez, is the claim that 'it is possible for a creature to be in states with nonconceptual content, even though that creature possesses no concepts at all'.[44] While Bermúdez's way of putting this argument sounds as though it is meant as a claim about the compositionality of contents, we could modify his argument to be a claim about the attribution of mental states in this way: creatures that possess no conceptual abilities can still be attributed perceptual experiences with some kind of representational content as they seem to exhibit the same sort of discriminative perceptual abilities as concept-using creatures. If concept-using creatures and non-concept-using creatures can both be attributed content-bearing representational states, and these representational states are nonconceptual in concept-using creatures, then it is

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[42] Evans (1982: §7.4) talks of nonconceptual contents becoming conceptualised and by conceptualising a subject thereby goes from being in one kind of mental state to another. See McDowell's criticisms (1994: Lecture 3). Also, Stalnaker (2003) talks about contents being nonconceptual 'all the way up', meaning that contents that are conceptualised retain some element that is nonconceptual, and so being the same in kind.

[43] McDowell (1994)

[44] Bermúdez (2003b): 295.

plausible that they are also nonconceptual in the non-concept-using creatures. Therefore the attribution of nonconceptual mental states need not be reserved only for concept-using creatures. Peacocke upheld the rejection of the Autonomy Thesis in his (1992). There he argued that, in order for a creature to build a mental map of its spatial environment, that creature must be able to conceive of itself as occupying some position within that spatial environment, and therefore requires that that creature possess 'at least some primitive form of the first-person [conceptual ability]'.[45] It was Peacocke's view at that time that the first-person concept was one requirement on a subject's being in any sort of mental state that represented spatiality, thus in order to be in the sort of nonconceptual state that represents spatiality one must possess some conceptual abilities.[46]

I call this sort of view the *singular*-personal claim because of the restriction on the Autonomy Thesis. Subjects may on this view be attributed a nonconceptual mental state on account of their lacking some particular conceptual ability that would normally be required for a subject to be in a belief state having the same content, though this perceptual state is understood within a network of other conceptualised belief states (states that require the first-person concept for instance). And I call this the singular-*personal* claim because these contents are thought to be what constitutes the content of first-person perceptual experience. In this way, the singular-personal claim can be contrasted to the informational level of content in that the latter is not thought to be available to a subject in perceptual experience.

Finally, the rejection of the Autonomy Thesis means that a subject can only be in a nonconceptual representational state if they can otherwise be in conceptual states—thus only concept-using creatures can be in nonconceptual representational states. However it is not necessary to reject the Autonomy Thesis in order to defend some other mixed view of contents. It would be possible, for instance, to accept the Autonomy Thesis and still hold that perceptual contents retain some nonconceptual element even after they are conceptualised. I believe Stalnaker's (2003) view is something like this as he is not committed to rejecting the Autonomy Thesis and he holds that conceptualised contents retain something nonconceptual.

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[45] Peacocke (1992a): 90. See also Bermúdez (2003b) for discussion of Peacocke's argument.

[46] In the postscript to his (2003), Peacocke explains why he was forced to change his mind on the Autonomy Thesis. I would refer the reader to that.

5.8 *Autonomous-Personal Contents*

The main difference between the arguments for singular-personal nonconceptual contents and autonomous-personal nonconceptual contents is that the latter accepts the Autonomy Thesis. On this view, there would be no restriction that a subject must possess some conceptual abilities in order for them to be attributed a nonconceptual perceptual state. Such contents would be available to non-concept-using creatures. One theorist who holds such a view is José Luis Bermúdez.[47] On his account, nonconceptual content is that content of perceptual experience that holds in common between concept-using creatures and non-concept-using creatures. Bermúdez takes some such notion of nonconceptual mental states to underwrite what he calls the 'developmental explanation': 'the acquisition of the capacity for being in states with conceptual content is explained in terms of a developmental progression over time from being in states possessing nonconceptual content.'[48] For such development to work, it must be assumed that the subject is consciously aware of the representational contents of their perceptual experience. Subjects develop conceptual abilities—like developing the concept *red*—on the back of perceptual experiences that represent red things. A subject must then be able to represent red in their perceptual experience before they have acquired the concept *red*.

The developmental explanation is one motivation for defending some notion of nonconceptual mental states and is a version of a more general motivation for nonconceptualism, which I call 'the argument from perceptual learning'. In its most basic form, the argument from perceptual learning claims that subjects do not possess perceptual concepts innately, but must acquire them on the basis of perceptual experience; in order for a subject to acquire a perceptual concept on the basis of their experience, the feature of the external world to be conceptualised over must play a role in the subject's conscious perceptual experience in advance of their having acquired the concept; therefore, the content of perceptual experience must be represented nonconceptually in order to facilitate perceptual learning. Something like the argument from perceptual learning must form the background of any concept that is thought to be

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[47] However, Bermúdez refers to this as the 'Autonomy Principle'. See Bermúdez and Macpherson (1998).

[48] Bermúdez (2003c): 294. A form of this argument also appears in Peacocke's motivations for defending his notion of nonconceptual content. I will return to this in §1.7.

learned empirically.[49]

Bermúdez takes the connection between the Autonomy Thesis and the developmental explanation to be inseparable—if all concepts are to be learned empirically, then there must be a point early on in a subject's mental life where all mental states were pre-conceptual. On Bermúdez's view, the claims of cognitive scientists studying animal cognition would be meaningless without the Autonomy Thesis. To explain animal cognition, he claims, cognitive science must attribute some sort of content-bearing states to animals. Cognitive science would also be at a loss to explain how human infants can begin as non-concept-using creatures (as Bermúdez assumes that infants are) and yet grow up to have developed quite sophisticated linguistic abilities without endorsing the Autonomy Thesis. The rejection of the Autonomy Thesis, Bermúdez claims, would leave us with two options: either some sort of primitive conceptual abilities must be innate, or we could not attribute representational mental states to non-concept-using creatures—two options that Bermúdez finds highly implausible.[50]

One question to consider would be in what way the Autonomy Thesis might be related to the Priority Thesis. To remind the reader, the Autonomy Thesis is the claim that a creature can be in states with nonconceptual content independently of whether they can or cannot be in states with conceptual content, while the Priority Thesis is the claim that non-linguistic creatures have no conceptual abilities. As discussed in the previously, Bermúdez claims that the possession of a concept is closely tied with the possession of some linguistic ability. Indeed, Bermúdez is a staunch defender of the Priority Thesis, the claim that 'conceptual abilities are not available to non-linguistic creatures.'[51] Are these two claims related in some way? For Bermúdez, these are quite closely related. On his account, we must be able to attribute perceptual contents to non-linguistic creatures in order to explain their behaviour. However, as these creatures do not possess any linguistic abilities, then these creatures cannot possess concepts. The result being that whatever content we can attribute to a non-linguistic creature must be nonconceptual. Bermúdez must defend the Autonomy Thesis because of his acceptance of the Priority Thesis.

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[49] As remarked previously, DeBellis' example of the intermediate ear-training student is one such example of this kind of argument. Also, Peacocke's requirement that concepts must be grounded in perceptual experience in a non-circular way is often grounded in some form of the argument from perceptual learning.

[50] Cf. his (1998), (2003a), (2003b) and (2003c).

However, this is not a necessary move. It would not be inconsistent to reject the Autonomy Thesis while accepting the Priority Thesis. It is arguable that Evans does precisely this.[52] Someone might think that some conceptual capacities are requisite for being in a nonconceptual mental state (rejection of the Autonomy Thesis) while also holding that non-linguistic creatures have no conceptual capacities. In this case, the theorist must think that animals simply do not have conscious experiences. This is not inconsistent in itself, though it may be a bad view to hold for other reasons.[53]

Nor would it be inconsistent to accept the Autonomy Thesis while rejecting the Priority Thesis. One might think that there is no restriction in principle on non-linguistic creatures from being concept-users while also holding that it is possible for a creature to be in a nonconceptual mental state independently of their being in any conceptualised mental state. Other combinations of accepting both (or denying both) the Autonomy Thesis and the Priority Thesis are of course available as well.[54]

5.9 *Conclusion*

In §4.1 I reviewed Crowther's distinction between the compositional and attributional debates over nonconceptual content. Drawing on this, I argued that the correct way of understanding the attributional debate would put conceptual abilities at the heart of the issue. Conceptual abilities, I argued, are not tied to linguistic abilities. Rather conceptual abilities are inferential or recognitional abilities that a subject must possess in order to be in some representational states. The sort of mental abilities that a subject must possess in order to be attributed a true case of knowing how would count as a

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[51] Bermúdez (2003b): 192.

[52] Bermúdez and Macpherson (1998) make this claim.

[53] See Bermúdez and Macpherson (1998) for criticisms of this point.

[54] Incidentally, it is difficult to see where both Peacocke and McDowell stand on these issues. In Peacocke's (1992a), he certainly rejects the Autonomy Thesis but he says nothing explicitly about the Priority Thesis. One might presume that he would accept the Priority Thesis on the grounds that he seems to present a strongly linguistic view of concepts. However, his discussion of perceptual concepts throws this point into doubt (see his 1992a, Ch. 3). Peacocke's possession conditions for the concept *red*, for instance, never mention that a subject must possess any sort of linguistic ability.

Similarly, in McDowell's (1994), he clearly accepts the Priority Thesis, however it is unclear what he would say about the Autonomy Thesis. In Lecture VI, he does seem to allow that some level of content could be attributed to animals, but that they do not have conscious experiences in the way that concept-users do. Presumably whatever content can be attributed to animals must be nonconceptual. On his view, animals are not concept-users, and the contents of their informational states, like ours, are nonconceptual. What is clear on McDowell's view is that perceptual *experience* must have a conceptual content. If the Autonomy Thesis is understood as a claim about the contents of informational states, then his acceptance of the Autonomy Thesis would merely allow that animals can be in nonconceptual informational states. It is open for him to accept the existence of nonconceptual informational states because these would not threaten his view of perceptual experience. Alternatively, if the Autonomy Thesis is understood as a claim about the contents of conscious experience, then it would make no difference whether he rejected it or not as he rejects that the contents of conscious experience can be nonconceptual.

conceptual ability, though this is just one kind of conceptual ability. In Chapter Seven I will review a psychological capacity that subjects must possess in order to represent musical pitch and will argue that this too counts as a conceptual ability. Finally, I presented three ways of understanding nonconceptual content—as subpersonal informational contents, as a singular-personal contents or as autonomous-personal contents. Informational contents are nonconceptual though these operate at a subpersonal level and so would not characterise the way that conscious level experience is for a subject. To describe the contents of consciously available perceptual states we must either look at singular-personal contents or autonomous-personal contents.

Which of these conceptions should we prefer in the case of music? Musical experience appears to be meaningful only for humans, and as we are concept-using creatures, the contents of musical experience clearly get at least as far as the singular-personal contents. Whether the contents of musical experience are autonomous-personal contents depends on whether non-concept-using creatures can have musical experiences. Speaking for DeBellis, he gives no reason to think that non-concept-using creatures cannot have musical experiences, though this is not something he addresses. DeBellis' strong argument for nonconceptual content does claim that the contents of musical experience are available to a subject who possesses no music-theoretic concepts, as we shall see in Chapter Nine. However it is unclear whether that argument can be taken as an endorsement of autonomous-personal contents. Again, DeBellis is talking about musical experience in humans. He claims that subjects need not possess any *music-theoretic* concepts in order to experience music, but that is very different from saying that such contents are available to non-concept-using creatures as would be the case for autonomous-personal contents. (Incidentally, as I will argue that the perception of music does require a subject to possess a special conceptual ability for the representation of musical pitch, I would therefore be arguing that the contents of musical experience cannot be autonomous-personal contents—indeed, I will be arguing that they must be conceptual. On my account non-concept-using creatures cannot have musical experiences. The reason for this is simple: the representation of musical pitch requires a special conceptual ability; non-concept-using creatures possess no conceptual abilities; so non-concept-using creatures cannot have musical experiences. However, it would be very premature for me to discuss this further here—this will emerge more clearly in Chapter Ten.)

CHAPTER SIX:

THE MIND-INDEPENDENCE CONSTRAINT

A common motivation among theorists who defend some notion of nonconceptual mental states is that experience represents objects and properties of the mind-independent world—that what are represented in perceptual experience are mind-independent features of the external world.[1] It is difficult to find an explicit argument for the mind-independence of the represented objects and properties; rather this notion is just bound up in the way that perceptual experience is understood. It is through perceptual experience that we come to have contact with the objects and properties of the external world as they are in themselves. Perceptual experience reveals to us the way that the world is.[2] And this understanding of the aim of perception is central to the intentionalist's account of contents: contents are assessable as true or false in their representation of the way that the world is. This is a view often called 'externalism', which claims that part of what makes some mental content true is some conditions that are external to the perceiver.[3] By drawing attention to the mind-independence of the objects of representational contents I hope to offer one constraint on nonconceptual contents.

Standardly, mind-independence is often described as the claim that some perceivable thing does not depend upon its being perceived for its existence. Applying this thought to the contents of perceptual experience, a minimum interpretation of this claim would be that if some content represents mind-independent features of the external world, then the objects and properties that this content represents do not depend on their being represented by some perceiver for their existence. Indeed, this is a claim that must follow from the notion of nonconceptual content—that certain features (properties, qualities or states of affairs) of the external world can be represented in perceptual

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[1] For instance, M. G. F. Martin in citing the transparency of experience as a motivation for intentional theories of perception says of the intentionalist that 'the character of one's experience involves in some sense, or is directed on or of the mind-independent objects and their features which we take to be around us in our environment' (forthcoming): 31. See also Armstrong (1961): Chs. 5 & 6; Crane (2001): §41; Martin (2002); and Peacocke (1983): Ch. 1.

[2] See for instance Armstrong (1961), Ch. 9.

[3] See Kripke (1972), McGinn (1989). For criticisms of externalist theories of perception specifically, see Alston (1990). I should also note that a theorist who accepts the intentional theory of perception is

experience without making any demands upon the conceptual abilities of the perceiving subject. Any theorist who holds that some perceptual state is nonconceptual must hold some kind of mind-independence claim for the properties that that mental state represents.

This could be seen as one of the conditions of nonconceptual content, that contents that are thought to be nonconceptual must represent mind-independent features of the external world. This is a point that I will develop and defend in this chapter, that perceptual states can be nonconceptual only if the properties that these states represent are mind-independent in the right way. Much of this chapter will be spent explaining what 'in the right way' amounts to. The purpose of this constraint is to offer a way of distinguishing between contents that require of the subject that they possess some conceptual ability for that content's representation and those contents that do not. In the last chapter, I argued that some mental state is attributionally nonconceptual iff a subject can be attributed an intentional state of a certain kind that does not require the subject's possession of any special conceptual ability. The Mind-Independence Constraint is meant to be a theoretical tool that should help us to determine whether a mental state is attributionally nonconceptual or not. Mental states that are attributionally nonconceptual are those that would satisfy the Mind-Independence Constraint.

6.1 *Statement of the Mind-Independence Constraint*

This is what concerns me: When we perceive a change in our perceptual environment, how do we account for that change? Specifically, how do we account for changes in the way that objects appear represented to us? Suppose one looks and sees a red ball, and as one is looking, one notices the ball changing colour—the colour of the ball gradually changes from pillar-box red to crimson. Our explanation of this perceived change in colour might take into account some story about, say, a change in the lighting conditions, or perhaps the change in colour is due to some change in the subvening properties of the object that are involved in its being coloured. These would be explanations of *how* the change in colour came about, or what *caused* the colour to change. But my concern is about how we account for this change in the contents of perceptual experience. When one perceives the ball as being pillar-box red (and

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not committed to externalism. For instance, Crane argues against externalism for mental contents generally in his (2001): §§36-37.

assuming that one's experience is veridical), one could be described as being in a certain perceptual state, one that represents that '*x* is pillar-box red'. After the change has occurred, one may no longer be in the 'pillar-box' state, instead one is now in a perceptual state that represents that '*x* is crimson' (assuming that the experience is still veridical). I am mainly concerned with how we account for the difference between these two representational states, so we could refine the question we started with to: How do we account for changes in a subject's perceptual consciousness? My feeling is that some changes in a subject's representational content will have a sufficiently mind-independent explanation, and some will not. It will then be of particular interest to examine how these changes in representational content can fail at mind-independence. But first, I will offer a definition of mind-independence.

The basic idea of mind-independence that I wish to defend is that the content of some perceptual state represents a mind-independent feature of the external world (an object, property or state of affairs) if that feature is represented in experience without needing to refer to any conceptual ability of the perceiving subject. In such cases, the correctness conditions for the attribution of these mental contents need not call upon the subject's employment of any special conceptual ability. This is what I call the Mind-Independence Constraint (MIC):

> some perceptual content represents a mind-independent feature of the external world if that representational content can be distinguished from other contents of a subject's perceptual experience in a way that does not rely upon the subject's possession of any special conceptual ability.

This idea of mind-independence is consistent with the attributional definition of nonconceptual mental states that I discussed in the previous two chapters—that some mental state is nonconceptual iff a subject can be attributed an intentional state of a certain kind that does not require the subject's possession of any special conceptual ability. The MIC just makes the relation between the mind-independent properties of perceptual experience and their mental representations more explicit—if some perceptual state is nonconceptual, then it must represent some mind-independent feature of the external world. Mind-*de*pendent contents are either not nonconceptual or they are not perceptual—by 'not perceptual' I am referring to those contents that do not

represent features of the external world at all, of which pains might be one candidate.[4]

We will find that often the best way of testing whether some mental content does require the subject's possession of a conceptual ability will be to compare the correctness conditions for some attribution of content between two mental states. The correctness conditions for those perceptual contents that would satisfy the MIC need only take into account the way that the external world is physically constituted and the way that the perceiving subject is physiologically constituted. Opposed to this, I will argue that there are some perceptual states that require that the subject must also possess a conceptual ability of a certain kind in order to be attributed a certain content-bearing perceptual state—that is, in addition to the physical conditions of the external world and the physiological conditions of the perceiving subject being constituted in the right way, the correctness conditions for these content attributions must also take into account the subject's possession of a certain conceptual capacity for the representation of certain kinds of perceptual properties. In such cases, if some conceptual ability is required in order to attribute some content-bearing perceptual state to a subject, then the content of this perceptual state cannot satisfy the MIC. Thus, mental states that fail to satisfy the MIC cannot be nonconceptual mental states.

Also, I should state that the MIC is not intended to handle cases of perceptual indiscriminability—those cases where the contents of experience are introspectibly identical. Rather the MIC is intended to handle cases of perceptual discrimination, where the representational contents of a subject's perceptual experience are distinct contents. So, the MIC is not threatened by the observation that type-identical perceptual contents may have different distal causes. In debates over colour experience, for instance, it is often asserted that the same type of colour experience may be caused by objects that possess different physical properties. This is often expressed by saying that

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[4] Contrary to this, Michael Tye (1995) argues that pains are representational, that they represent tissue damage sustained by the body. I am not concerned with whether or not Tye's representational theory of pains works. Rather I am concerned with perceptual experience and I am understanding perceptual experience in such a way that excludes pains. Headaches, tickles, feelings of nausea and the like are not cases of perception as the latter require some immediate relation to objects, properties or states of affairs that are external to the perceiver. Debatable cases of perception would perhaps include proprioception or kinaesthesia. Are these properly perception? Is proprioception an 'inner sense' like pains or does it relate us to something in the external world? Additionally, visual memories may also seem to thwart this distinction. Clearly memories are mind-dependent, but are they cases of perception? Intuitively I would think that they are not. Memory would fail to be a case of perception because the external properties that they represent are not immediate to the perceiver. Like hallucinations, memories lack the appropriate perceptual relation to distal causes—whatever the relation is between the contents of memories and the objects they represent, it is not the perceptual relation. As such memories may count as instances of

supervenient properties may have a wide subvening base. This does not threaten the MIC as it can be acknowledged that different external physical properties might cause identical perceptual experiences in a subject. All that is required to satisfy the MIC is that these perceptual experiences should be caused by *some* external property. Additionally, the MIC is not meant as a way of explaining hallucinations. In order to explain hallucinations, we would first need to understand how these experiential states come to have their contents in the first place.

In what follows, I will first consider cases where mind-independence clearly holds, as in the perception of shape. Perceiving that some object is, say, square only requires that the world is a certain way (that some object actually is square) and that the perceiver has a visual system that is constituted in the right physiological way (that they possess a visual system that is constituted such that it can perceive edges and sides). Then, I will consider more difficult and subtle cases where the MIC is also satisfied, such as the perception of colour. I will finally move on to compare these to cases where I claim that mind-independence fails. Examples of such cases, I will claim, would be the representation of tertiary qualities as in the case of ambiguous figures that allow for the phenomenon of aspect shift.

6.2 *Mind-Independence and Shape Perception*

The simplest case to demonstrate the MIC would be the perception of shape properties, or indeed any of those properties that the Empiricists called primary qualities. Of course objects have their shape independently of their being represented in perceptual experience, and a mental state that represents an object as being a certain shape is veridical if the object really is that shape. This is a very simple way of putting the point, and clearly we must say much more in order to account for the many ways in which the perceived shape of an object can look from a different perspective. A tabletop may be perfectly square when looking down upon from above, but this is not a very common perspective from which one normally views a table. Rather its shape in the two-dimensional visual array would typically appear to be more oblong. Providing the correctness conditions for the shape of objects in visual experience must then take perspective into account. But providing such an account is more than what I want to do

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nonconceptual mental states that are mind-dependent. See Martin (2003) on memory and nonconceptual contents.

here. Rather, it would suffice for my purposes to show that, for a subject's shape-experience to be veridical, all that is required of the subject is that, when viewing an object that really is square under optimal viewing conditions,[5] they possess a visual system that is physiologically constituted in such a way that is appropriately sensitive to shape properties—perhaps it is necessary for their visual system to have surface and edge detectors, for instance. What is important for the satisfaction of the MIC in this case is simply that the perceptual state has the particular representational content it does independently of the subject's possession of any conceptual ability—it does not take any mental work to perceive a square *as* a square. All that is required to account for the representation of shape in visual experience is for the right sort of perceptual relation to hold between a subject with a visual system that is physiologically constituted in the right way and an object that in fact possesses the appropriate shape property.

Of course, I am making certain assumptions here about the causes of perceptual experience—that perceptual states have as a part of their causes some property or state of affairs in the external world, and that different external causes will result in different perceptual states. If some perceptual state represents ϕ (and assuming that this perceptual state is veridical), then I take it there must be some external object or state of affairs that can be described in terms of its having ϕ (or the disposition to appear ϕ to appropriate subjects) that accounts for this property's being represented in experience. This is just an extension of the intuitive thought that the purpose of perceptual experience is to track objects and properties of the external world. If some perceptual state represents an object as being square, then that object must actually be square, which means that the object possesses a property or disposition necessary for an appropriately placed subject to perceive that object as being square. If the object in question does not possess that property or disposition that perceptual experience represents the object as having, then either the experience is an hallucination (or an illusion), or the mental state must fail to satisfy the MIC. In this latter case the experience is neither an hallucination nor an illusion, rather the property that is represented is not an actual property of the external world, instead it is some kind of representational property.

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[5] By 'optimal conditions' I mean that the subject is facing the object, has their eyes open, is not suffering from an hallucination, and so forth. The optimal conditions are whatever conditions must hold in cases of actual, successful perceiving.

6.3 *Mind-Independence and Colour Perception*

Appreciating how the MIC holds in the case of colour perception requires a bit more delicacy and would be very instructive to examine closely. The case of colour perception is made difficult partly because colour perception suffers from subjectivity and partly because of the wide philosophical disagreement about the metaphysics of colour. I will address the first concern first.

Some readers might be confused by my claim that colour perception satisfies mind-independence when many theories of colour claim that colour perception is dependent upon creatures having minds with certain kinds of visual systems. The visual experience that I have when looking at a flower has a content of a different type from the visual experience that, say, a bee would have if it were looking at the same flower from the same perspective. The difference in the contents of our visual experiences is due to my having a visual system with a different physiological constitution from the bee's, as bees are sensitive to colours in the ultraviolet spectrum and I am not. So, when I look at, say, a daffodil, the content of my visual experience represents its colour as being a brilliant yellow, but the content of the bee's visual experience would instead represent the colours in the ultraviolet spectrum that the daffodil happens to reflect. Similar problems of subjectivity arise when we consider colour blind subjects or inverted spectrum cases.[6]

In cases such as these, many would be tempted to describe the difference in the subjects' visual experiences as a mind-*de*pendent difference. Subjectivity of colour experience may result in wide disagreement between subjects over the content of their respective experiences. However, this use of 'mind-dependence' is much broader than that required by the MIC. On my view, colour experience may still satisfy the MIC while acknowledging the point about subjectivity. I will explain.

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[6] The idea of the inverted spectrum goes back at least as far as Locke, who remarked that it is conceivable to imagine a subject for whom their colour experience is systematically inverted to the colour experience of a normal perceiver. When this subject is presented with a marigold, she represents the flower as being violet, and when she is presented with a violet, she represents this flower as being a brilliant yellow. (Locke, 1689 [1975]: II, xxxii, 15) For discussion, see also Hilbert and Kalderon (2000) and Tye (1992).

In colour perception, again the only two things that would be required to satisfy the MIC are that the conditions of external world be a certain way (which would include a description of the way that the object of the visual experience is constituted as well as, say, the lighting conditions of the environment) and that the perceiver is physiologically constituted in such a way that they are sensitive to those colour properties and lighting conditions in optimal viewing conditions. Differences in the physiological constitution of a subject's visual system will certainly play a role in accounting for differences between the contents of two subjects' visual experiences—two physiologically dissimilar subjects may have token visual experiences of completely different types—but that does not alter the fact that their visual experiences are tracking mind-independent properties of the external world. On the other hand, suppose that two subjects are physiologically constituted in the same way: then if they were to view the same object under the same lighting conditions, we would expect that their visual experiences would be of the same type. The MIC would be in trouble if the contents of these two subjects' visual experiences are not identical when all of the viewing conditions are saliently similar and the visual systems of the subjects are physiologically constituted in the same way. If this were the case, then colour experience would not be mind-independent.

The concern about subjectivity can be dealt with, first, by pointing out that my claims about mind-independence are meant to say something about what is required to explain those changes in representational content for a *single* subject. The MIC has nothing to say about the differences in perceptual ability between any two subjects, either inter-species or intra-species, and so the MIC is perfectly compatible with the subjectivity of colour experience. Second, it would be worth pointing out again that the MIC is not intended to handle cases of perceptual indiscriminability, and this is just the problem that colour blind subject's pose. Due to some physiological limitation of the colour blind subject's visual system, for a colour blind subject, objects that would look to a normal viewer to be differently coloured look to be the same colour. This would be unproblematic for the MIC provided that the colour blind subject's visual experience

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Regarding how the MIC would handle the inverted spectrum case, my intuition is that the inverted spectrum case is merely a special case of the problem of inter-species subjectivity. so we could treat this case as being closely analogous to the bee case, however I am less sure of this. The intuition is that the inverted spectrum sufferer could be thought of as forming their own 'sub-species' where subjects who are physiologically constituted in the way that they are would normally perceive colours as they do. If this is accepted, then the general point still holds, that the MIC would be secure provided that a subject's ability to discriminate colours is due to their tracking some state of affairs that is external to the perceiver.

does stand in the appropriate perceptual relation to some property of the external world that is the cause of their visual experience.

The second concern about the mind-independence of colour experience is about which metaphysical theory of colours might the defender of the MIC be committed to. There is wide disagreement about the metaphysics of colour—it would take me too far afield to review all of these fully here. To summarise, some theories hold that colours are dispositions that objects have to induce experiences of a certain kind in certain perceivers; others claim that colour properties are reducible to the physical microstructural level of objects; and some other theories claim that colours are objectively real properties that are irreducible to any physical property of the object. Against all of these views, some hold that colours are not part of the real world at all—that is, they are not part of a public three-dimensional world—but rather are some mental properties that are projected onto the world.

What theory of colour does the MIC hold me to? My claims about mind-independence would be satisfied by any theory of colour that acknowledges that colour experience is tied in some way to external causes such as reflectance properties or dispositions or the physical microstructure of an object. This would just be to acknowledge that part of what individuates colours must be some external facts about the world. The contents of colour experience would satisfy the MIC if it were held that the perceived differences in a single subject's colour experience are due to perceptual experience tracking changes in the external conditions of the world—that there is some perceptible difference between two shades of colour *because* there is either some difference between the two differently shaded objects in the subvening properties that are the cause of colour experience or there is some difference in the lighting conditions.

On the other hand, it would not be wholly inconsistent for a theorist who held an idealist or projectivist account of colours to also accept the MIC. In this case all it would mean is that the theorist would hold that the contents of colour experience would fail to satisfy the MIC, but this is just what the idealist or projectivist view is anyway. On these accounts, colour experience is tied to the mind—it *is* mind-dependent. There would be no inconsistency for a theorist to be an idealist about colour experience and also accept the MIC. It would just mean that such a theorist would think that colour experience does not represent some mind-independent feature of the external world.

6.4 *Aspect Shift and Failure of the Mind-Independence Constraint*

Now I will consider a case where I will claim that mind-independence fails. Cases that fail the MIC are generally those that involve some ambiguity such as the representation of patterns or the representation of ambiguous shapes. One such case would be the difference between representing the same object as being a square or as being a regular diamond. In such cases I claim it would be wrong to think that an explanation of these differences in perceptual content ought to be sought after in the underlying physical properties of the external world. There is no mind-independent difference between either description of the shape, so any perceptual difference is not something provided by the external world. Thus, such cases would fail to satisfy the MIC.[7]

Consider the case of the shapes in Figure 6:

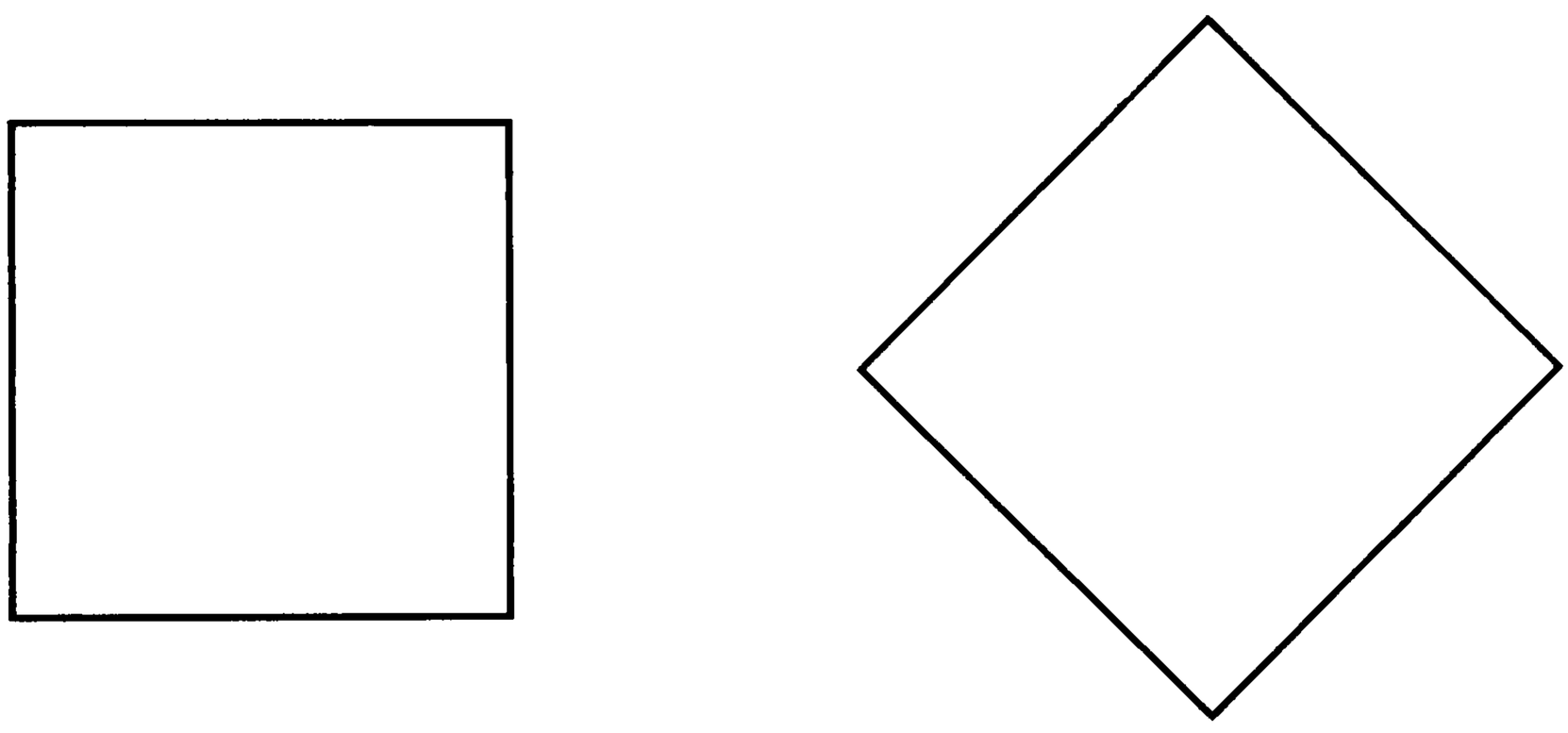

Figure 6

Many would find it natural to perceive the object on the left as a square and the object on the right as a regular diamond. These are in one sense the same shape (indeed, in this particular case, one is a digital copy of the other) though they differ as to their relative orientation. However, it is equally possible to see both as squares, or to see both as regular diamonds, and subjects who are suitably familiar with both squares and regular diamonds can perform the aspect shift between the two. Either object could conceivably be represented by either content—that is, representing an object as a square is not unassailably tied to its orientation. What interests me about this example is the way in which one can seem to shift one's attention between seeing either object as a square or as a regular diamond. When one is able to perform this shift, the content of

one's mental state changes. I will refer to the mental state that represents the shape in Figure 6 as a square as having content '*s*' and the mental state that represents the shape as a regular diamond as having content '*r*'.

We might hold that there is some mind-independent property or state of affairs that fixes the content of *s* that obtains in the external world, and that it is this property or state of affairs which the subject perceives when they are in state *s*. In this case, *s* represents the property of being *s* (square-ness, perhaps, or a symmetry of sides). And if we thought that these mental states were nonconceptual, then we must also hold that the external state of affairs that *s* represents is mind-independently distinct from that state of affairs that obtains when a perceptual state represents the world as being *r*. When a subject is in *r*, it is not the property *s* that is being represented, rather it is *r* (diamond-ness, or a symmetry of angles). One intuitive thought would be that both of these mental states represent properties that the object has, though the mental states differ because *s* has a different correctness condition from *r*. The interesting thing about the shape in Figure 6 is that it is able to satisfy the correctness conditions for two non-identical content-bearing states.

When a subject is able to shift between these two ways of representing the same shape, how are we to account for the difference between the perceptual state that represents the shape as a square (*s*) as opposed to the mental state that represents the shape as a regular diamond (*r*)? The contents of these two mental states are non-identical contents. When a subject performs the aspect shift, they go from being in a mental with one content to being in a mental state with another content. What is it that explains this change in the subject's mental content? As it regards the MIC, our question is whether this change in the contents of the perceptual experience is due to some change of the mind-independent conditions of the external world, or is this simply a change in the way that the mind represents the shape. I will argue that it is the latter in this case, and it is for this reason that the contents represented in *s* and *r* fails to satisfy the MIC, and therefore *s* and *r* are not nonconceptual mental states (or at least they are not nonconceptual insofar as the representation of the object's orientation is concerned).

My analysis of this example is directly contrary to Peacocke's, for I am denying that the representation of orientation is nonconceptual. However, I am *not* denying that the

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[7] Cf. Peacocke (1992a): §3.3. Peacocke claims that the contents that represent these shapes are nonconceptual. I am claiming that they cannot be. I will return to Peacocke's treatment of this example towards the end of this chapter.

representation of shapes is nonconceptual. As I argued above, the perception of shape (or generally primary qualities) is an excellent example of perceptual states that would satisfy the MIC. Here I am suggesting that the representation of shape (which is nonconceptual) is distinct from the representation of orientation (which requires conceptualisation). It will be helpful, then, to review Peacocke's position.

In his (1992a), Peacocke argues that those mental states representing the shape in Figure 6 as a square and those representing the shape as a regular diamond are nonconceptual mental states.[8] This claim is meant to solve a problem for his theory of scenario contents—those contents that map the egocentric relations of objects in the visual array. On Peacocke's account, scenario contents specify the general layout of objects visually perceived in a subject's environment—it captures the way in which space is 'filled out' around a subject—however such contents are insufficient to capture properties such as orientation. As Peacocke observes, if a subject looks at, say, a floor tile in the diamond orientation, the scenario content of their experience would map this region out as being square, as it is in fact square, but this would fail to capture the *way* in which the subject sees the tile, for he see it in the diamond orientation. Peacocke suggests that to see a floor tile as a square is to perceive a certain orientation of *symmetry*, namely it is to see the shape as being symmetrical about the bisectors of its sides, and to see the shape as a regular diamond is to see it as being symmetrical about the bisectors of its angles. Scenario contents fail to capture this 'way of perceiving the object's orientation' because all that scenario contents can do is specify how space is filled out in a subject's visual array, and a floor tile occupies the same area of space regardless of how it is oriented.[9] Yet orientation, Peacocke seems to think, is something that figures in the content of a subject's perceptual experience. So, we must find some way of describing how orientation comes to play a role in a subject's perceptual experience.

Before considering how Peacocke handles this, I would like to supplement Peacocke's example by saying a bit more about why orientation is so important. One thing that is somewhat unclear in Peacocke's discussion is just what it means to *perceive* orientation—what is the difference really between seeing something *as* a square and seeing that same thing *as* a regular diamond? Peacocke does offer a nice

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[8] The sections from Peacocke's (1992a) under discussion here are §§3.1 and 3.3.

way of explaining the difference between squares and diamonds—they differ as to their perceived symmetry. But this still seems somewhat abstract and academic. Part of what it is to perceive the symmetry of an object must be to *experience it as being* symmetrical in some way that is distinct from its being symmetrical in some other way. But what does it mean to 'experience it as being symmetrical'? Intuitively, I take this to mean that the two mental states are phenomenally distinguishable—it feels a certain way to see an object as a square, and this is distinct from seeing that same object as a regular diamond.

For illustration, consider this example. Imagine a man who works as a floor tiller—one whose job it is to set ceramic tiles in bathrooms and kitchens. This man is good at what he does, but he is not very imaginative, for he only works with square-shaped tiles and only sets his tiles in square-oriented patterns. He never thinks to turn them on their sides to use a different orientation. Now, suppose this man drops a bag of tiles, which breaks and scatters his tiles all across the floor. He looks at the tiles, which lay in all manner of orientation to him. How is the shape of these tiles represented to him in his perceptual experience? Does he see some of them as squares and some of them as regular diamonds? Or does he just see all of them as squares, though some are on their sides? My intuition would be that he simply sees all of them as squares, though some of them are on their sides, *and* these ones he feels are 'wrong'. And it is this phenomenological point about perceiving symmetry that I find quite striking, that things can look to be 'right' or 'wrong' to a subject. Think of the experience of looking at a place setting on a table and noticing that one fork is uneven. It looks wrong—it feels like the right thing to do would be to set the fork properly. I imagine that this is how some of the tiles on the floor would look to our unimaginative floor tiller: some of them would look out of place being on their sides. Suppose our floor tiller were to look at the two shapes in Figure 6. He would see the one on the left as a square that is properly oriented, and (I claim) he would see the one on the right also as a square, but one that is wrongly set on its side. This is what 'experiencing symmetry' would mean: experiencing that there is a 'rightness' or 'wrongness' about the position of the object. If this is correct, then it is easy to see why Peacocke's scenario content proposal must be supplemented by another level of content, for scenario contents only specify the way in

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[9] Orientation is not the only feature represented at Peacocke's level of protopropositional content. Most notably, colour would also be found at this level as scenario contents are insufficient to capture colour experience.

which the visual array is filled out, which itself could contain no notion of 'rightness' or 'wrongness'.

Returning to Peacocke, he supplements his view of scenario contents by positing another level of (nonconceptual) content, which he calls *protopropositional contents.*[10] This level of content would account for those properties and relations that cannot be captured by his scenario contents but are still part of the perceptual experience. Protopropositional contents are nonconceptual in that a subject need not possess the concept *square* (or even the concept *symmetry*) in order to perceive an object as being a square (that is, being symmetrical about the bisectors of its sides). Furthermore, Peacocke claims, placing the perception of symmetry at this nonconceptual level also would allow for a non-circular way of explaining a subject's possess of the concepts *square* and *regular diamond.* It would be non-circular in that the concept *square* may be analysed in terms that do not already presuppose the subject's possession of that concept, rather all a subject would need is to be perceptual familiarity with perceiving an object's being symmetrical about the bisectors of its sides. The subject acquires the concept *square* by familiarising themselves with objects that look 'that (square) way'.

The reason why I disagree with Peacocke's analysis is because I think he accepts too readily that those properties that make a phenomenal contribution to perceptual experience must be properties of the perceived object of perceptual experience. I do not think that properties of orientation are like shape properties, where the latter are primary qualities. Rather I think properties of orientation are intentional properties—they are properties of the representational content, which I think of as tertiary qualities. And tertiary qualities are mind-*de*pendent. This can be shown by examining how it is that the mental states *s* and *r* fail to satisfy the MIC.

Consider what is involved in the correctness conditions for the belief ascription if we were to ascribe to a subject the mental state *s*. What must be taken into account in order to attribute *s* to a subject? Figure 6 is an ambiguous figure such that either mental state, *s* or *r*, could be a correct representation of the object's shape. The content of either mental state correctly represents the physical properties of the external world. If representing the shape of the object were all that mattered, then either *s* or *r* would do, but as Peacocke argues (and I agree) there is more to the representational content of these perceptual states than the shape of the object. The difference in orientation

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[10] Ibid.: 77-80.

amounts to a phenomenal difference between the two mental states—that is, *s* is phenomenally distinct from *r*. Peacocke describes the difference between representing an object as a square or as a regular diamond as a difference between the orientation of symmetry. When one perceives an object as a square, they represent the axis of symmetry as falling between the bisectors of its sides, and when one perceives an object as a regular diamond, then they represent the axis of symmetry as falling between the bisectors of its angles.[11] I think this is right—Peacocke's way of describing the difference is one way of capturing the way in which the two perceptual states differ phenomenally in intentional terms: one mental state *represents* a square while the other *represents* a regular diamond. On Peacocke's account, the phenomenal distinction is due to a difference in the intentional content.

However, crucially only one of these descriptions will capture the way in which the subject actually perceives the object as being. If this is correct, then attributions of belief states must take into account the *way* in which a subject represents Figure 6. It would be wrong to attribute a subject who represents the shape *as a square* the mental state *r* even though this may be a correct *de re* attribution—though the object does possess the property that would allow it to look like a regular diamond to a subject, attributing the mental state *r* to a subject who perceives it as a square would not capture the phenomenology of their experience. This would be as incorrect as describing my believing that 'Hesperus is shining' as the belief that 'Venus is shining'—it is correct *de re* but fails to capture the sense in which I am thinking of Venus. Rather to get the mental attribution right for a subject who perceives the shape in Figure 6 as being oriented in a certain way, we must retain the sense in which the subject represents that shape. Indeed, if we accept Peacocke's intentionalistic account of this example, then failing to capture the phenomenology of the subject's perceptual experience would also amount to a failure to capture the *content* of the subject's mental state.

In order to explain the possibility of a subject's ability to shift between the two representational states, we cannot appeal to a change in the conditions of the external world—the shape itself has not changed—nor can we appeal to a change in the physiology of the perceiving subject. Both objects in Figure 6 can be said to possess both the property square-ness and the property regular diamond-ness (or if we wish to avoid talking of properties, then we could say that both objects possess the dispositions

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[11] Peacocke (1992a): 76-77.

to look like a square and to look like a regular diamond), which is the reason why either mental state *s* or *r* could correctly represent those objects. So admittedly both mental states represent a real mind-independent property (or disposition) that the object has. The question, however, is what is it that has to happen in order for a subject to represent the object as *s* at one time and as *r* at another time? Here, the answer must be that something mental has to happen. This is a case where the mental states have distinct contents and yet the change in the subject's mental state is not due to the subject perceptually tracking some change in the conditions of the external world. Nothing in the external world has changed, all that has changed is the subject's focus of attention.

Does this mean that the representation of the orientation of a shape is conceptual? The most natural way of describing this case is to say that the content of the subject experience changes because the subject conceives of the object in a different way, they represent the object under a different mode of presentation. For illustration, imagine a subject who did not possess the concept *regular diamond* but did possess the concept *square*—this may indeed be the case with our unimaginative floor tiller. It would be intuitive to think that this subject would only ever represent the shapes in Figure 6 as squares no matter what their orientation may be. Similarly, to take another example, think of the duck-rabbit picture and imagine how this picture would look to a subject that had never seen a rabbit and had no concept of rabbits but is familiar with ducks. To such a subject, the duck-rabbit picture would only ever look like a duck. Such a subject could not have a visual experience of the picture as of a rabbit. To see the duck-rabbit picture *as* a duck is to represent the picture under the mode of presentation *duck*, and to see the duck-rabbit picture *as* a rabbit is to represent the picture under the mode of presentation *rabbit*.

As discussed above, in the cases of shape perception and colour perception there seem to be only two things required in order to account for the correctness conditions of these experiences: that the subject's visual system be physiologically constituted in a particular way and that the object of visual experience be physically constituted in a particular way. However, in the case of Figure 6 (or even in the case of the duck-rabbit picture) three things seem to be required: that the subject's visual system be physiologically constituted in a particular way, that the external conditions of the object of visual experience be constituted in a particular way *and* that the content ascription accounts for the sense in which the subject represents the object. If describing the difference between the mental states *s* and *r* must take into account the sense in which

the subject represents the object, then this cannot satisfy the MIC. Remember that the MIC states that the content of a mental state represents a mind-independent property of the object if we do not need to refer to any conceptual ability in order to fix the content of that mental state.

6.5 *One Possible Objection*

Before leaving this discussion, I would like to consider one possible objection. It could be objected that, in the case of Figure 6, the difference between those two mental states would satisfy the MIC as both mental states represent properties (or dispositions) that the object has independently of their being perceived. One might argue that *s* does represent a mind-independent property that the object has—the property of looking symmetrical about the bisectors of its sides—while *r* also represents a mind-independent property that the object also has—the property of looking symmetrical about the bisectors of its angles. One might be motivated by the thought that these are both mind-independent properties—some object does not need to be perceived in order for it to have either of these properties. So, it would seem that there is a mind-independent way of describing the difference between these two mental states.

This objection does not get at the heart of the MIC, but it does point out something important: that in the case of ambiguous figures, there must be something about the figure that makes the ambiguity apt—that is, the figure must possess some pair of properties that accounts for the ambiguity. The duck-rabbit picture possesses both the property of looking duck-like and the property of looking rabbit-like to a perceiver. Similarly each object in Figure 6 possesses both the property of looking symmetrical about the bisectors of its sides (the square orientation) and the property of looking symmetrical about the bisectors of its angles (the diamond orientation). Both the duck-rabbit picture and the objects in Figure 6 are apt for aspect shift seemingly because they possess properties that make them apt for these ambiguous representational states. The objection we are considering raises the question whether we should think of *being in the square orientation* and *being in the diamond orientation* as mind-independent properties of these objects, or as primary qualities. This certainly raises some important questions about the distinction between primary, secondary and tertiary qualities. I will not be able to offer a full account of this distinction here, though I can offer some reason to think that this objection does not threaten the MIC, which might shed some light on the

distinction between primary, secondary and tertiary properties.

The point of the MIC is that, for a single subject who is able to switch between the two representational states *s* and *r*, what changes is not the external object, rather it is the way that the object is represented in experience. Those cases that fail to satisfy the MIC are those where a subject switches from being in representational state with content *p* at $time_1$ to their being in representational state with content *q* at $time_2$, where the explanation for the change in the representational contents is a mental change rather than a physical change. Nothing about the external world has changed that justifies the change in the subject's mental state, nor have the viewing conditions changed. All that has changed is the sense in which the subject represents the object. Of course, I would not want to deny that that particular shape-property of *being a four-sided equilateral and equiangular figure* is a mind-independent property, nor would I deny that the contents of shape perception are nonconceptual insofar as they represent that shape. Furthermore, it does not take any special conceptual ability to perceive a square *as* a four-sided equilateral and equiangular figure, nor does it take any special conceptual ability to perceive a regular diamond *as* a four-sided equilateral and equiangular figure. Clearly they both are. However, I am claiming that it *does* take a special conceptual ability to represent these objects *as* a square at one time and for the same subject to represent the same object *as* a regular diamond at another. It is orientation that is a tertiary quality, and the orientations of the objects in Figure 6 are susceptible to aspect shift. Aspect shift is a *mental* feat, not a perceptual one.

What sort of conceptual ability does it take to represent the orientation of an object? As remarked above, perceiving an object as being oriented in a particular way is just to see an object as having some 'rightness' or 'wrongness' about its relative position within the visual scene. The sort of inferential or recognitional ability that a subject must possess in order for them to represent an object as standing in some orientation to the viewer must be one that allows the subject to perceive the object as being rightly or wrongly positioned within a visual scene. I envision this as a kind of recognitional ability that must be built up through experience. Through perceiving objects having the shape property of being a four-sided equilateral and equiangular figure, the subject builds up certain expectations about how a properly formed four-sided equilateral and equiangular figure should be positioned within particular contexts.

6.6 *Conclusion*

To review, nonconceptual representational contents track mind-independent objects and properties of the external world. Nonconceptual mental states can be individuated by referring to those conditions of the world external to the perceiver that establish the veridicality of these representational states. The MIC states that, for nonconceptual mental states, when a subject experiences a change in the content of their experience, there must be an accompanying change in the conditions of the external world that the subject's perceptual experience is tracking in order to account for the change in their representational contents. If there is no change in the conditions of the external world, then the representational content of the subject's experience cannot be individuated solely in terms of the objects and properties of the external world. These mental states cannot satisfy the MIC. Failure to satisfy the MIC is typically due to some representational contents requiring that the subject possess a conceptual ability for the representation of some property, thus such contents cannot be nonconceptual.

The MIC will be very important for my criticism of DeBellis' weak argument for nonconceptual content in musical experience. In Chapter Eight I will argue that those musical properties represented in a subject's auditory experience cannot satisfy the MIC, and therefore these cannot be nonconceptual mental states. However, before reviewing DeBellis' argument we should examine the perception of music. In the next chapter I will present some empirical studies of music perception and cognition. The remarkable thing about music perception is how highly cognitive it is. The question to consider in the next chapter is whether the empirical evidence can be taken as showing that the mental representation of some musical properties would fail to satisfy the MIC. I will argue that it does. In particular the empirical studies that I am most interested in are those having to do with the representation of musical pitch. After reviewing the empirical evidence for the representation of musical pitch, we will then be in the right position to consider DeBellis' claim that the contents of musical experience are nonconceptual and to decide whether the empirical evidence causes trouble for DeBellis' claim.

CHAPTER SEVEN:

THE EMPIRICAL DATA ON THE PERCEPTION OF MUSICAL PITCH

Musical pitch and its mental representation is an interesting case in the study of auditory experience. Just what is represented in experience when a subject hears a certain sound as, say, a B-flat? We should try to imagine a case somewhat different to the cases examined previously. In Chapters Three and Four when we discussed DeBellis' representational theory of music and his rejection of weak intentionalism, we were mainly concerned with the representation of token sound-events that fell into certain relations with other token sound-events. In those early chapters, we considered what it was to hear one sound-event as being part of a melody or a rhythmic figure. The discussions in those chapters were mainly concerned with what it is to hear an individual sound-event as being a constitutive part of a larger musical figure that is constructed of a series of distinct sound-events. We previously examined what is was to hear a particular sound-event as standing in some relation to other sound-events—a beat is heard as being part of a rhythmic figure, or a note is heard as being part of a melody. The suggestion in those chapters was that to hear a series of sound-events *as* a melody (or rhythmic figure) is to hear certain musically salient relations as holding between the individual sound-events making up that series.

The kind of examples I will consider in this chapter will typically be cases where a subject hears a single tone in isolation. We had a glimpse of what would be required of a subject in hearing a sound in isolation when we considered the tritone case in Chapter Four (see Figures 4.2 and 4.3 on pages 56 and 63 respectively). In the tritone case, we were asked to imagine a subject who hears two notes played together to form an ambiguous dyad. The sort of examples we will consider in this chapter will go one step further. Imagine someone who casually and randomly presses down on one key on a piano—say, the B-flat just below middle C—and listens to the resounding pitch. The subject hears the note B-flat and this is represented in her auditory experience. How are we to describe the content of that subject's auditory experience as representing the note B-flat? This question is related to a claim that I had made previously in Chapter Three, that all musical properties are essentially relational properties. In Chapter Three I had explained how musical properties such as melodic function could be relational

properties, as these properties must be analysed in terms of hearing the sound-event as part of some musical context. I had promised in that chapter that I would explain later how we can think of musical properties as being relational when the sound-event is heard in isolation. I will take up that challenge in this chapter.

My feeling is that there are two descriptions that could be given, one in terms of the representation of legitimately mind-independent properties of the physical sound wave itself, such as the perceived frequency, intensity and duration of the sound-event (though these last two do not play a role in the perception of musical pitch), and another description in terms of the identity of that sound's falling under some musically relevant class of sound-events, which could (somewhat clumsily) be called 'B-flat-sound-events', or more naturally 'B-flats'. The first of these descriptions—the representation of frequency, intensity and duration—makes an excellent candidate for representational content that would be nonconceptual. Very few people possess even basic familiarity with the concepts that describe the frequency, intensity and duration of sound waves in auditory experience other than, perhaps, acoustical engineers or cognitive scientists studying auditory perception, and the technical concepts that these people employ need not be employed in *experiencing* a sound. Furthermore, mental states that represent the basic physical qualities of acoustics could easily be shown to satisfy the MIC, as these properties could be treated in much the same way that we treated colour properties. However it is that the physical properties of sound-events come to be represented in auditory experience, the contents of these mental states must be nonconceptual.

The representation of these physical auditory qualities constitutes a level of perceptual experience that holds in common between concept-using and non-concept using creatures—obviously animals and infants exhibit clearly observable signs of perceptual sensitivity to differences in frequency, intensity and duration. But can it be supposed that animals and infants also hear these auditory-events *as* musical events? Imagine that there is a cat present in the room with the subject who is listening to the B-flat on the piano: we could describe the cat's auditory experience in terms of its perceptual sensitivity to the frequency, intensity and duration of the *sound*, though we might hesitate to ascribe to the cat an experience of hearing a *musical pitch*. Clearly the cat is able to exhibit behavioural responses to the sound of the piano, but can we thereby assume that it is responding to these sounds *as* musical tones, or *as* music? Animals certainly share with us the perceptual sensitivity to physical frequency, but the question is whether the representation of physical frequency is simply all there is to hearing

musical pitch. Can the representation of musical pitch be reduced to the perceptual sensitivity to physical frequency? This is the main concern of the second sort of descriptions of the representational states contrasted above, the sort that represents the sound-event *as* the musical pitch 'B-flat'. It seems questionable to me whether such a reductionist account is possible, as the empirical evidence on pitch perception seems to indicate otherwise. In this chapter, I will review the empirical evidence on musical pitch. In particular the sort of empirical studies that I am interested in are those that hypothesise on the nature of tonality—that quality of a tone's being related to other tones in a harmonic series—and those that enquire into the nature of pitch perception. To anticipate, the general finding is that tonality and pitch are not strictly objective features of the external world; rather our experience of tonality is the result of a cognitive process that orders the auditory stimuli in a certain way. The experiments and hypotheses examined in this chapter will show why the representation of musical pitch would fail to satisfy the MIC, so it will be helpful to spend a bit of time examining these empirical results in detail.

7.1 *Sound and Tone*

First, I will offer one distinction. In the following discussion, and for the remainder of this dissertation, I will adopt a terminological distinction between hearing a *sound* and hearing a *tone*. When I talk about the representational content of a subject's hearing a certain *sound*, what I have in mind is just what is represented at the level of physical frequency, intensity and duration—the acoustical properties of sound-events. This is a level of auditory representation that does not already assume that the auditory events being perceived possess any sort of musical quality. By contrast, when I talk about the representational content of a subject's hearing a certain *tone*, I thereby intend that, in addition to frequency, intensity and duration, the subject also represents the auditory event as having some musical quality, specifically the subject hears the sound as being some *musical pitch* or other. Typically a subject hears a certain auditory event as a musical pitch though they might be in doubt as to exactly which musical pitch it is that they hear. So the subject who casually pushes down on the B-flat key of the piano would hear the resounding tone *as* some musical pitch though they might not know that they had pressed down on the B-flat (assuming that the subject is not a pianist and has no knowledge of the workings of the piano) and so might not think of the tone

specifically *as* a B-flat. Indeed, perhaps they are incapable of thinking in this way due to a lack of musical training. However, despite this lack of musical training, our casual piano-key-pusher still hears the resounding sound as a musical pitch—that is, the subject would hear the sound as a musical tone, though they would not know which tone it is. In addition, I will also use *tone* as a general term for sounds that are heard as being some musical note though the subject does not know which musical note it is, and will use *pitch* or *note* to refer to a cases where a subject is able to identify which pitch it is that they hear. In my terminology, a 'sound' is just any auditory event that is heard, while a 'tone' is a sound that is heard as standing in a melodic relation to other possible sounds that could be expressed in music theoretic terms. All auditory experiences represent sounds, while some of these experiences represent tones.

Unfortunately, the plausibility of this distinction will only become clear once we have examined the empirical evidence on pitch perception. However it seems pre-theoretically plausible to distinguish sound-events that are not heard as having some musical quality—say, the sound of a glass breaking—from those sound events that do. If the subject who is listening to the B-flat on the piano simultaneously hears the sound of a glass breaking, why does the subject hear the B-flat *as* a musical tone but does not hear the sound of the glass breaking in this way as well? The suggestion that we find in psychological studies on pitch perception is that musical hearing represents a particular musically salient quality that is absent in episodes of non-musical hearing. The purpose of this chapter will be to examine the empirical evidence on musical pitch to understand what this 'musically salient quality' that is absent in episodes of non-musical hearing would be.

At the very beginning of Helmholtz's famous work on sound, he too distinguishing between 'noises' and 'musical tones', though the basis for his distinction is quite different from mine. Helmholtz's distinction rests on the claim that, to paraphrase, noises are complex and irregular auditory events whereas musical tones are by contrast very simple and regular. Musical tones are in a sense more 'pure' in Helmholtz's view. As he nicely puts it:

> We perceive that generally, a noise is accompanied by a rapid alternation of different kinds of sensations of sound. Think, for example, of the rattling of a carriage over granite paving stones. the splashing and seething of a waterfall or of the waves of the sea, the rustling of leaves in a wood. In all these we have rapid, irregular, but distinctly perceptible alternations of various kinds of sounds, which crop up fitfully.... On the other hand, a musical tone strikes the ear as a perfectly undisturbed, uniform sound which remains unaltered as long as it exists, and it presents no alternation of various kinds of constituents. To this then corresponds a simple, regular kind of

> sensation, whereas in a noise many various sensations of musical tone are irregularly mixed up and as it were tumbled about in confusion.[1]

Helmholtz's suggestion has a certain elegance and plausibility to it. Indeed, his distinction between 'pure' and 'irregular' sounds may be seen as forming the basis for one empirical hypothesis on pitch perception in infants. Infants before the age of five months exhibit little sensitivity to properly musical qualities, but they do attend to musical sounds with seemingly great interest. While proud parents might jump to the conclusion that their child likes listening to the music, it is more likely that what the child enjoys listening to are the relatively more stable pitches. Spoken language is a highly complex auditory event where the voice makes quick and erratic leaps in frequency and ranges over a relatively narrow bandwidth—in most Western languages, the equivalent of a minor third. Musical tones, on the other hand, centre on a single frequency for relatively longer time durations while the changes in frequency in, say, a simple children's' song are also much wider than in spoken language. As far as the sound events go, spoken language is characterised by very irregular frequency fluctuations over a narrow bandwidth while musical tones are more stable and change over wider bandwidths. The suggestion, which seems clearly in the spirit of Helmholtz, is that infants attend to the more 'pure' musical sounds because of their more stable frequencies and greater tonal range.[2]

By comparison, my distinction between sound and tone is more psychological in nature than Helmholtz's. It would seem to be possible on Helmholtz's view to distinguish between a noise and a musical tone objectively, say by referring to a spectrometer—the more confused the spectrometer's reading, the more 'noisy'. My distinction is more concerned with what is represented in the content of a listener's auditory experience. Accepting that sometimes music is very confusing and irregular sounds have become more acceptable in music making (take the music of Igor Stravinsky or Albert Ayler for example), the real point of my distinction is that, while all tones are sounds, a sound is perceived as a tone just in case a constitutive part of the content of a listener's perceptual state represents that certain musical relations hold between the variously heard sound-events.

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1 Helmholtz (1885): 7-8.
2 Sloboda (1985): 198.

7.2 *Pitch Perception in Cognitive Science*

The empirical evidence for the cognition of musical pitch is rather interesting, and very surprising. In the cognitive science literature, there was a revolution in thought about the constitutive elements required for the representation of musical pitch. This revolution was caused by the discovery of much empirical evidence that contradicted the once received view. This earlier view, attributable to Helmholtz, was that auditory experience represented musical pitch simply along the one-dimensional spectrum of physical frequency. The representation of musical pitch on this view could then be reduced to or explained in terms of a listener's representation of physical frequency, and any musical relation perceived between token sound-events—such as consonance or dissonance—could then be described as an harmonious (or disharmonious) blending of the frequencies and their overtones.[3]

The empirical evidence that overturned this was the discovery that musically sophisticated subjects would often find two frequencies more closely related if they were both members of the same *pitch class*. Subjects judged that tones separated by an octave sounded to be more closely related to each other than two tones that were closer in frequency. For instance, musically sophisticated subjects would find the resemblance between 440Hz (concert A) and 880Hz (A one octave higher) to be closer than the resemblance between 440Hz and 469Hz (B-flat). This is because, musically speaking, 440Hz and 880Hz are both members of the pitch class 'A'. The tones in this class are separated by an octave[4]—the intervals between the preceding and succeeding tones all form a ratio of 2:1—and are heard as having the same melodic function—that is, they are all heard as having the same relation to the tonal centre within some melodic context. This could be taken as the definition of pitch class, that, within a certain context, notes that are heard as having the same melodic function will be notes of the same pitch class (though notes of the same pitch class can sound to have different melodic functions in different contexts). Thus, the tones 110Hz, 220Hz, 440Hz, 880Hz and 1760Hz are all heard as instances of A as Figure 7.1 illustrates.

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[3] The roots of this theory can be found in Helmholtz's (1885) highly influential theory of 'roughness'. It was hypothesised that, as each tone generates a particular series of overtones, then two tones will be more consonant if there is greater similarity in each tone's overtone series, whereas dissonance occurs where two tones have fewer matching frequencies in the overtone series. Thinking of his distinction between noises and musical tones, fewer matching frequencies would be noisier.

[4] For the non-musician, an *octave* is the distance in physical frequency between the first *do* and the second *do* in a complete musical scale—*do*, *re*, *mi*, *fa*, *sol*, *la*, *ti*, *do*.

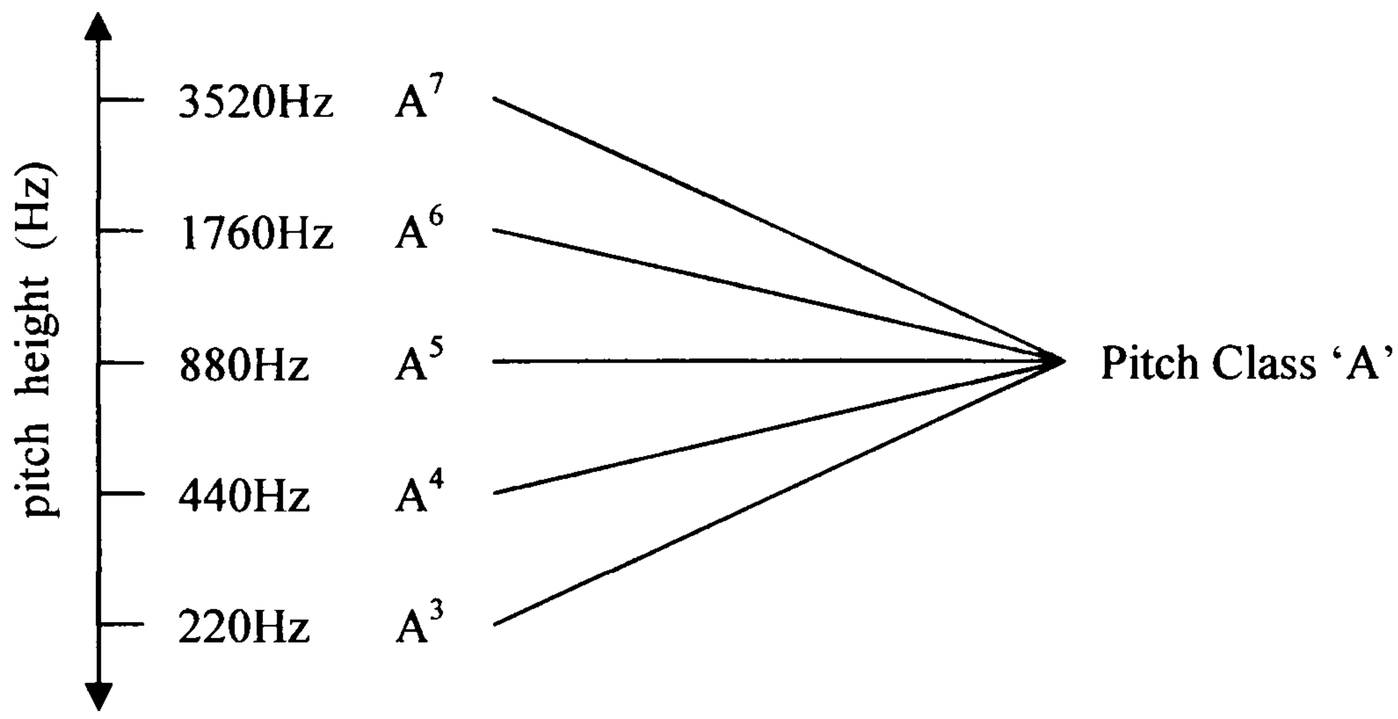

Figure 7.1

The tendency to identify two tones whose frequency stands in a 2:1 ratio as belonging to the same pitch class is what music-psychologists refer to as *octave equivalence*. Seeking to explain why musically sophisticated subjects preferred the relation of pitch class over closeness of frequency, psychologists hypothesised that the representation of musical pitch could not be reduced simply to the one-dimensional spectrum of physical frequency. Findings such as these prompted psychologists to examine to what extent music-theoretic relations could be more salient to a subject's representation of music than the simple representation of physical frequency.

The empirical evidence for octave equivalence I will focus on comes from a series of experiments conducted by Bharucha, Jordan, Krumhansl and Shepard. Again, according to the earlier Helmholtz-view of pitch perception, musical notes were classed along the one-dimensional spectrum of physical frequency where a tone with a fundamental frequency of, say, 440 Hertz (Hz) sounds 'higher' than a tone with a frequency of 420Hz, and 'lower' than a tone with a frequency of 490Hz. The classification of tones being physically 'higher' and 'lower' along the frequency spectrum is called their 'pitch height', which is roughly the distance between two tones along the frequency axis. This was considered by the Helmholtz-view to be the primary means of classifying tones. However, in the middle of the twentieth century, psychologists began to question whether the classification of tones by pitch height was really all there is to a subject's representation of musical pitch. If so, then the phenomenon of octave equivalence would seem quite mysterious.

The account that replaced Helmholtz's view holds that 'pitch is a more complex

attribute having at least two components: pitch height and octave equivalence'.[5] Again, what is being called *pitch height* is simply the distance between two notes in physical frequency—musical notes within the same octave are referred to has having the same height—while *octave equivalence* is a psychological ability to assign tones to a pitch class. The range of human sensitivity to frequency roughly covers eight octaves, and each octave contains twelve discrete note classes (given Western chromatic tonal system), so that, for example, the note names 'A^4', 'B^4' and 'C^4' refer to three notes belonging to distinct pitch classes within the fourth octave, whereas 'A^4', 'A^5', and 'A^6' refer to three tones that belong to the same pitch class ranging over three octaves.[6]

In addition to the octave, many other intervals within diatonic harmony can also be described as regular ratios. For instance, the interval of a perfect fifth (P5) can be described as the ratio 3:2, and a major third (M3) has a ratio of 5:4. A perfect fifth is achieved, for instance, between the tones 440Hz and 660Hz; a major third is achieved between the tones 440Hz and 560Hz. Table 7.1 shows the frequencies and ratios for pitch classes in the Western chromatic scale using just intonation from Concert A fixed at 440Hz. Again, doubling (or halving) any of these frequencies would result in a tone of exactly the same pitch class one octave above (or below) the starting frequency.

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[5] Krumhansl and Shepard (1979): 580.

[6] There is an interesting debate in the cognitive science of music over the best way to map these pitch relations. One illustrative suggestion is that pitch relations must be represented on a three-dimensional map shaped like an upwards-spiral, or single helix. Pitch height is on this view represented along the vertical axis of the helix, and octave equivalence is represented by each segment of the helix that overlaps. All overlapping segments have the same pitch class, they possess octave equivalence. See for instance Krumhansl and Kessler (1982). For an overview see Krumhansl (1990), Ch. 3.

Pitch Class	A	A# (Bb)	B	C	C# (Db)	D	D# (Eb)
Hz	440	469.3*	493.88	523.25	550*	587.33	619*
Ratio	1:1	16:15	9:8	6:5	5:4	4:3	45:32
Interval	Unison	m2	M2	m3	M3	P4	TT

Pitch Class	E	F	F# (Gb)	G	G# (Ab)	A
Hz	659.26	698.46	733*	783.99	825*	880
Ratio	3:2	8:5	5:3	16:9	15:8	2:1
Interval	P5	m6	M6	m7	M7	Octave

Table 7.1[7]

Another interesting phenomenon that was noticed by empirical psychologists is that, in addition to finding octave equivalence to be a highly salient relation, subjects were also found to judge that certain other tones within the musical scale were better suited to finish a melodic phrase than some other tones such that a hierarchy of tonal relations could be constructed. Experiments by Krumhansl and Shepard (1979) and Bharucha and Krumhansl (1983) found that subjects preferred tones that fell within a diatonic harmony to non-diatonic tones, and also found that, within the diatonic tones, typically the octave, the fifth and third degrees of the musical scale were the most highly preferred, followed by the fourth, sixth, second and seventh respectively. This is what is known as the 'tonal hierarchy'.[8]

A 'tonal hierarchy' is a structured set of relations that holds between a series of musical tones. Within a given melodic context, certain tones sound to be better suited to follow other tones—some tones sound consonant and some sound dissonant. This phenomenon is relational because of the contextual nature of tonality—there are no

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[7] Frequencies in Hertz are from Luce (1993): 131, however those marked with an (*) have been estimated by calculating from the ratio. All ratios and intervals are given from Concert A and are from Helmholtz's 'table of roughness' (1885): 332. Lastly, in the interval field of this table, the lower case 'm' should be read as 'minor', the upper case 'M' should be read as 'major', the upper case 'P' should be read as 'Perfect', and 'TT' should be read as 'Tritone'. It should also be mentioned that there has long been much debate concerning what the correct ratios for standard tuning should be. Helmhotlz's ratios in this table employ *just intonation*. If *equal tempered intonation* is used, one would find that many of the ratios would contain much higher integers.

[8] For a very good though technical overview on the tonal hierarchy hypothesis, see Krumhansl (1990): Ch. 2.

objective or context-independent properties of tonality.[9] The idea is that a sound having a frequency of, e.g., 523Hz has no inherent *tonal* quality just by virtue of the sound's having that frequency. I should here remind the reader of the example given in Chapter One (Figures 1.1 and 1.2, p. 19), in which the same tones played in different contexts would sound to have different directions of pull. To remind, in the context of the C-major tonality, C (523Hz) sounds to be the most consonant pitch. A natural melodic progression would be a B to C resolution (*ti – do*). However, in other contexts this sequence would sound to be less stable, such as in a G-major tonal context where B (*mi*) sounds to be more consonant than C (*fa*).

Perhaps one of the more mysterious phenomena concerning music listening is that some notes just sound 'right' (consonant) while other just sound 'wrong' (dissonant). It is an interesting question why this should be the case, and it is this notion of tonal dependence and consonance that psychologists have enquired into. What is important is that this 'sounding to be most consonant' is not something that the frequency 523Hz has necessarily just by virtue of its being that frequency. If this were the case, then it should not matter what tonal context 523Hz appeared in, which it most clearly does. As Meyer claims:

> ...consonance and dissonance are not primarily acoustical phenomenon, rather they are human mental phenomenon and as such they depend for their definition upon the psychological laws governing human perception, upon the context in which perception arises, and upon the learned response patterns which are part of this context.[10]

Whether Meyer's behaviouristic account of perception as a system of 'learned response patterns' is tenable or not is not my concern. What does concern me are the perceptual foundations upon which such learned response patterns might be based. Meyer's claim, and the claim that appears to be widely endorsed by many cognitive

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[9] The claim that 'there no objective properties of tonality' is somewhat of an overstatement, but a justifiable one. There have, of course, been attempts to identify objective qualities. For instance, it is a common claim, traceable back to Pythagoras, that consonant intervals are those produced by ratios of the smallest integers (e.g. the octave 2:1, perfect fourth 4:3, and perfect fifth 3:2); less consonant intervals are produced by ratios with larger integers (e.g. major sixth 5:3, major third 5:4, minor third 6:5); and dissonant intervals are those produced by the largest integers (e.g. major seventh 15:8, minor second 16:15, and the tritone 45:32). This would seem to provide a mathematical explanation for consonance and dissonance; however such explanations seem to provide little to explain aesthetic tastes. Others have argued that consonance and dissonance are the result of frequency interactions in the overtone series. An interval will sound more consonant to the extent that the two tones have more overtones in common. This kind of theory, also associated with Helmholtz, offers an explanation of consonance and dissonance in terms of the 'fittingness' or 'roughness' of overtones. For an overview on these, see Krumhansl (1990), Ch. 3.

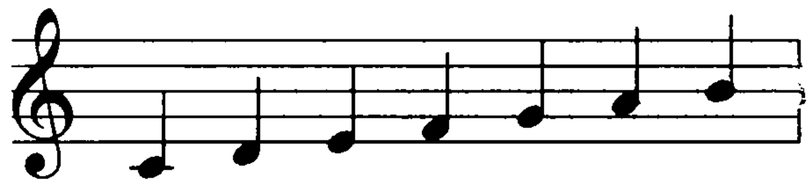
[10] Meyer (1956): 230.

scientists, is that pitch perception is the result of a psychological process that endows auditory events with differing degrees of significance, which can be described as a tonal hierarchy. The tonal hierarchy hypothesis is a very important claim, so it would be helpful to examine the empirical evidence for this more closely.

7.3 *The Probe Tone Study*

The tonal hierarchy hypothesis has been the subject of many empirical studies including those by Krumhansl and Shepard (1979), Krumhansl and Kessler (1982), Bharucha and Krumhansl (1983), Cuddy and Badertscher (1987) and Jordan (1987). I will give a brief examination of two empirical studies on the perception of tones. My presentation of the experiments here will begin with Krumhansl and Shepard (1979) as reported in Krumhansl (1990: Chs. 2 & 5).

In Krumhansl and Shepard's (1979) experiment, called the 'probe tone study', subjects were presented an ascending C-major scale with the last note missing (Figure 7.2). This consisted of the notes C, D, E, F, G, A, and B.



	C	D	E	F	G	A	B
Chroma:	*1*	*2*	*3*	*4*	*5*	*6*	*7*
Solfège:	*do*	*re*	*mi*	*fa*	*sol*	*la*	*ti*

The Probe Tone Study [11]

Figure 7.2

These seven notes were then followed by the 'probe tone', which could be any of the thirteen tones from the even-tempered chromatic scale (Figure 7.3).

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[11] I have included both the corresponding chroma positions below each diatonic pitch as well as their solfège names in order to aid ease of reference. I will often refer to pitches using both chroma and solfège terms. The reader unfamiliar with these terms may find it helpful to refer back to this table at times. Also, psychological notion of chroma is roughly equivalent to music-theoretic notion of scale degree.

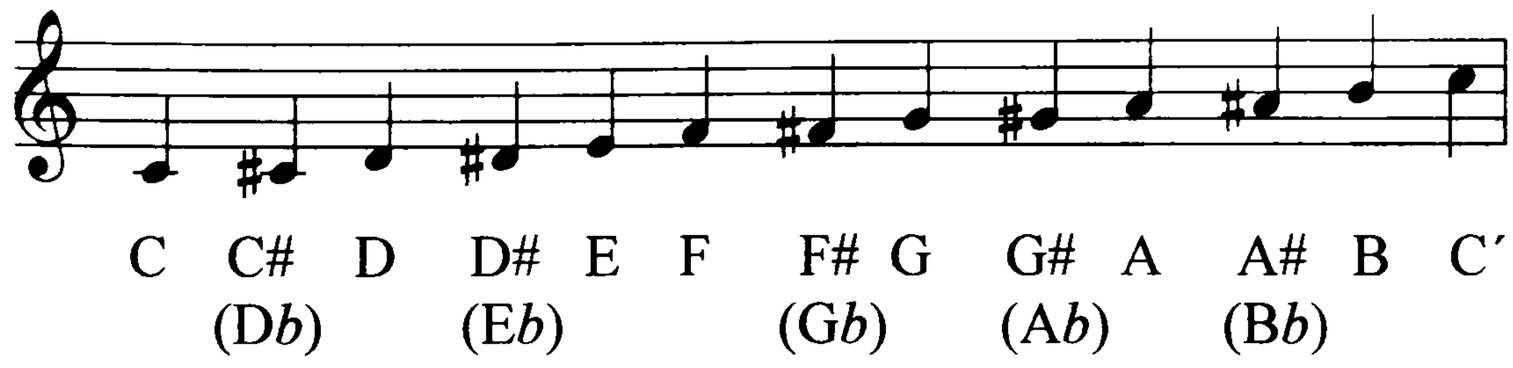

Figure 7.3

The method employed by the probe tone study was to present to a subject an incomplete sequence of tones within an unambiguous harmonic context. After the incomplete sequence of tones was presented, the subject was then presented a 'probe tone' and asked to rate how well each probe tone completes the scalar sequence on a scale from 1 ('very bad') to 7 ('very good'). The purpose of this experiment was to test whether subjects who were intermediate music listeners (the sort of musically sophisticated subjects for whom octave equivalence was deemed to be a highly salient relation) had a preference for certain tones within a particular tonal context. The hypothesis being tested was that a hierarchy of preferences would go some way towards explaining consonance and dissonance. The experiment was repeated with a descending C-major scale, an ascending C-minor scale and a descending C-minor scale; and subjects were broken up into groups depending on prior musical knowledge and experience.[12]

The results of this experiment (displayed in Table 7.2) show that subjects on average found the pitch C to be the most fitting tone to complete the sequence.[13] The pitches G and E scored highly in C-major, while in C-minor, the E-flat and G also scored highly.[14] Also, these results show that all other diatonic tones (tones natural to the key) scored higher than the non-diatonic tones (in C-major, the non-diatonic tones are all those in-between tones, like 'C# (D*b*)', which do not naturally occur in C-major).

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[12] In Cuddy and Badertscher's (1987) experiment, the same type of experiment was conducted on children. In this, the same auditory stimuli were presented to children ranging from ages 5 to 9 that had attended some music classes in school. The findings of that experiment showed that the children's performance was nearly identical to the results for adult subjects compiled by Krumhansl and Kessler (1982).

[13] Some subjects showed a preference for the high C when the sequence was ascending and the low C when the sequence was descending; however either C was still more preferred than any other tone. Interestingly, this preference seems to correspond with the subject's level of musical training. See Krumhansl and Shepard (1979) for a more detailed account of their results.

[14] It is postulated by Krumhansl that the E-flat scored so highly in C-minor because of the closeness this tone shares with the tonic of the relative major.

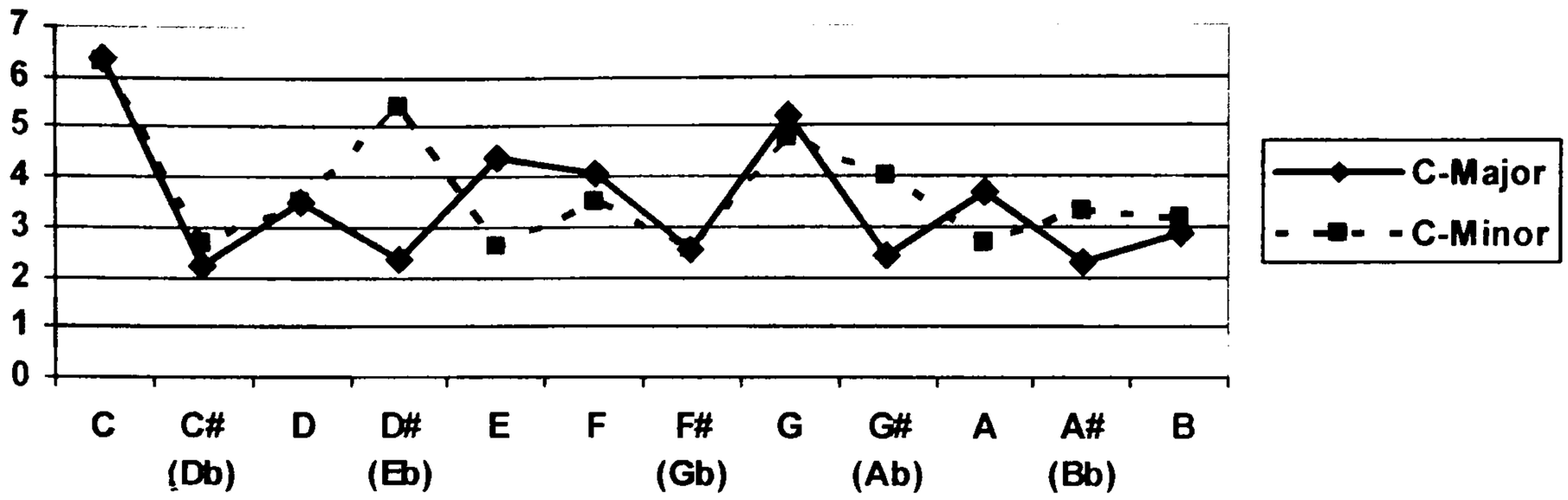

Table 7.2 [15]

What is interesting about these findings is that the resulting hierarchy is very closely correlated to theoretical expectations based on known tonal tendencies in Western diatonic harmony. The first and fifth scale degrees are known by musicians and music theorists to be highly 'stable' tones, whereas the seventh degree is known to be a highly 'unstable' tone. It is unsurprising from the point of view of the music theorist that the first and fifth degrees should score so high and the seventh, or even the non-diatonic tones, should score so low.

In reference to these findings, we could consider again the point made above—that there are no objective properties of tonality. The claim was that sounds do not have their particular musical quality just by virtue of their being sounds of a certain frequency. Thinking again of the B-C resolution, in a C-major context, the note B sounds to be the least consonant of the diatonic tones and C sounds to be the most consonant. Referring to Table 7.2, the chroma position of B is *7* (*ti*) and C is *1* (*do*), where B sounds to be the least consonant of the diatonic scale degrees. However in a G-major context, as in C-B resolution, the same tones, B and C, would correspond to chroma positions *3* (*mi*) and *4* (*fa*). In this latter context, the note B, here the *3*, would sound to be more consonant than C, the *4*. This change in consonance is not due to any change in the tones' frequencies—in both contexts the frequencies are 493Hz and 523Hz respectively. It is only due to a change in the tonal context—what changes are the tones' relative positions within the major key.

The suggestion that Krumhansl and Shepard offer on the basis of these results is that

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[15] Krumhansl (1990): 30-31. These results present the average score of three broad groups of subjects—subjects with little- to-no musical training (0-1 years), subjects with some musical training (2-5 years), and subjects with considerable musical training (5+ years). It should be noted that the results for subjects with the greatest overall average of musical training were both more uniform than either of the other groups and more exaggerated—subjects in the third group were more likely to give a score of one or seven, and gave these more often.

'the perceptual interpretation of sounds as music depends upon the categorical assimilation of those continuously variable sounds to an underlying discrete set of tones arranged in what we have been calling the tonal hierarchy', and 'to the extent that tones are interpreted musically ... simple physical separation in log frequency gives way to structurally more complex and cognitive factors'.[16] Their idea is that a subject hears a sound as being a musical tone by assigning this tone a position within the tonal hierarchy, and that this is something that the mind does with the incoming auditory stimuli. Frequencies do not possess the properties of consonance or dissonance objectively; rather the same tone will sound to have a different tonal quality (consonance or dissonance) in different contexts. This tonal hierarchy is thought to be an internalised organisational ability that is responsible for endowing auditory stimuli with the particular musical relations that it sounds as having. The results of Krumhansl and Shepard's (1979) probe tone study suggest that incoming auditory stimuli gets the particular musical quality that it has by being organised into tonal relations that fit the tonal hierarchy.

This hypothesis seems to go against intuition and raises a particular philosophical question. Is tonality a property of musical experience that is furnished by the mind, or is tonality an actual property of the sound-events that are heard in experience? This question is closely analogous to the famous question that Socrates once put to Euthyphro: is the holy loved by the gods because it is holy, or is the holy holy because it is loved by the gods?[17] To recast this question in the present debate, the question becomes, does musical pitch correlate to the tonal hierarchy because sound possesses tonality, or does sound possess tonality because the tonal hierarchy organises auditory experience in that way? The question essentially is to discover whether the tonal hierarchy truly is a psychological capacity that plays an essential organising role or is it merely an interesting explanatory tool. The hypothesis on offer stresses that the phenomenon of hearing sounds as having certain tonal relations is not something that can be explained by referring to the objective physical qualities of the auditory stimuli; rather it is necessary to musical hearing that the mind add something to experience.[18] Providing evidence for this necessity is the task of Shepard and Jordan's (1984) 'stretched scale' experiment, which is the second source of empirical evidence that I

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16 Krumhansl and Shepard (1979): 592.
17 *Euthyphro*: 10a.
18 See Krumhansl's discussions of this throughout her (1990).

will discuss.

7.4 *The Stretched Scale Experiment*

Shepard and Jordan (1984) devised two experiments in order to test the extent to which these psychological capacities might play a role in fixing the character of a listener's perceptual contents. Their hypothesis was that if tonality is something that is added on in experience by the mind, then this should be detectable when the incoming auditory stimulus does not perfectly match the relatively mathematically stable relations of the tonal hierarchy. Shepard and Jordan's method was to present subjects with an imperfect musical scale where the intervals between each note are augmented in order to see whether subjects notice the discrepancy. Of their two experiments, Shepard and Jordan's second experiment sought to show that subjects who are presented with a subtly and systematically incorrect musical scale will still represent what they hear as if it were constructed correctly. I am mainly concerned with the findings of this second experiment and will focus my discussion on that.

The intervals between the notes of a diatonic major scale are not all the same size; rather there are five major seconds and two minor seconds. The diatonic major scale consists of eight notes—*do*, *re*, *mi*, *fa*, *sol*, *la*, *ti* and *do´*. Figure 7.4 illustrates the relative distance between each step of the major scale.

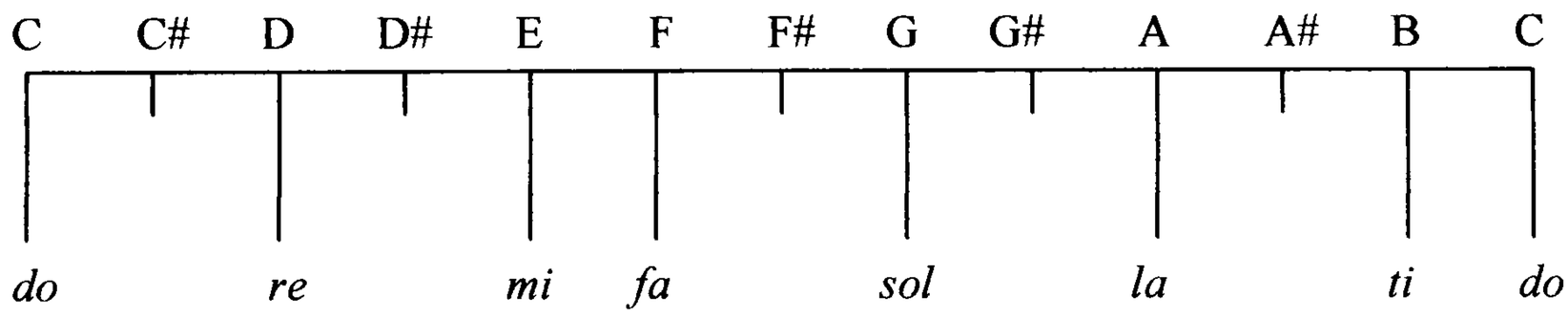

Figure 7.4

All Western diatonic major scales (or the Ionian mode) follow this sequence of intervals. When a listener hears a tone as being *do*, for instance, they hear the tone as standing in certain relations to other tones within an harmonic context. Some of the relations that they hear this tone as standing in would be hearing the tone as being a major second below *re*, hearing the tone as being a perfect fourth below *fa*, hearing the tone as being a minor second above *ti*, and so on. For a listener to hear a tone *as being C* is just for the listener to hear this note as standing in these tonal relations. Shepard and Jordan's hypothesis is that these intervals constitute an internalised 'schema' that

subjects must possess in order to represent sounds *as* tones that fall within diatonic harmony. A *schema* is a psychological prototype that, in this case, all incoming auditory stimuli are compared and organised in reference to. Their claim is that 'the internal schema may act as a template that, when brought into register with a tonal input maps the unequally spaced physical tones into the discrete steps of the schema, with a resulting unique conferral of tonal stabilities … on the tones'.[19] The uneven spacing of the tones of the octave is very important: if an octave where divided into evenly spaced tones, then the listener would have no means of identifying where a particular tone falls within the octave as, in an evenly spaced octave, all tones would be the same distance from each other. Consider how, if all the notes of an octave were evenly spaced, as representing in Figure 7.5,

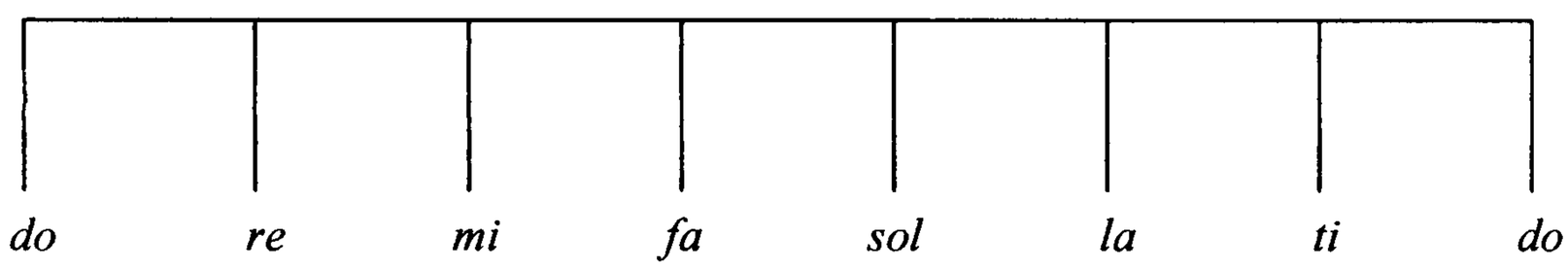

Figure 7.5

then a listener would have no way to identify the key. When all the tones are the same distance from each other, then there is no way of identifying where within a particular key any one note stands.[20] Such a scale would lack tonality, and this is exactly what, in essence, is the point of twelve-tone music, which uses all twelve tones of the evenly spaced chromatic scale equally giving no preference to any one tone, and thereby achieving atonality. However, the fact that the octave is unevenly spaced means that each tone occupies a unique position within the octave, having a unique set of relations to the other tones. Tones that have the same set of relations sound to be harmonically equivalent and therefore are members of the same pitch class. The idea that an internalised schema might act as a template for the incoming auditory stimulus might help us to explain how sounds are identified as being members of a particular pitch class. By hearing a sound as standing in a unique set of intervallic relations to other sounds, the subject is then able to place the tone somewhere within the tonal schema. It is hypothesised that it is due to this process of schematisation that sounds come to be represented as musical tones.

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19 Shepard and Jordan (1984): 1333.

20 For a very interesting discussion of experiments in octave subdivision, see Sloboda (1985): 254-257.

It should be noted, however, that this process of schematisation does not provide an explanation of consonance and dissonance; it only provides a way of identifying tones as falling somewhere within the octave by attending to the intervallic distances of the tones. The phenomenon of consonance and dissonance requires another explanation. To tie this in with the discussion of consonance and dissonance above, we should remember that tones sound to be consonant or dissonant depending on the context in which they are heard. Hearing a sound as having standing in certain intervallic relations to other sounds, as described here, is the means by which a listener is able to identify the context. Based on my reading of the empirical evidence, it is uncertain whether these two hypotheses are jointly necessary, or whether their necessity can be separated out; nor am I certain as to whether these are the result of one psychological capacity that emerge together, or are the result of two separate and independent psychological capacities. I am thinking of these as being jointly necessary and therefore as being two aspects of one psychological capacity, however I would wish to reserve judgment on this until I have had the chance to review more empirical evidence on these issues.

To demonstrate that the possession of such schemas are necessary for the representation of musical pitch, Shepard and Jordan presented subjects with an auditory stimuli that subtly stretched the sequence of intervals and predicted that subjects would still seek to organise the auditory stimulus in a way fitting the internalised schema. In their experiment, subjects were presented with a series of tones very similar to a diatonic major scale except that the intervals between each tone were uniformly increased by a ratio of 13:12. In Figure 7.6 below, the bottom line represents the correct distance of the intervals of the chromatic Western scale while the dots along the top line represent the distance of the widened intervals of the stretched scale and where these tones would relatively correspond to the correct scale. Stretching each interval by a ratio of 13:12 resulted in a scale built up out of intervals that were each slightly too wide, and yet wide enough to be detectable.[21] (Empirical studies of pitch perception are in disagreement as to how fine-grained the human auditory system is—the disputed range falling between one-sixth of a half-step to one-twentieth—however increasing a tone by 13:12 would fall within this range.[22]) If each tone of a scale is increased by a ratio of 13:12, then a scale that begins on C would end with C#′. This scale is not a perfect octave; rather the stretched scale ranges over a minor ninth. The difference

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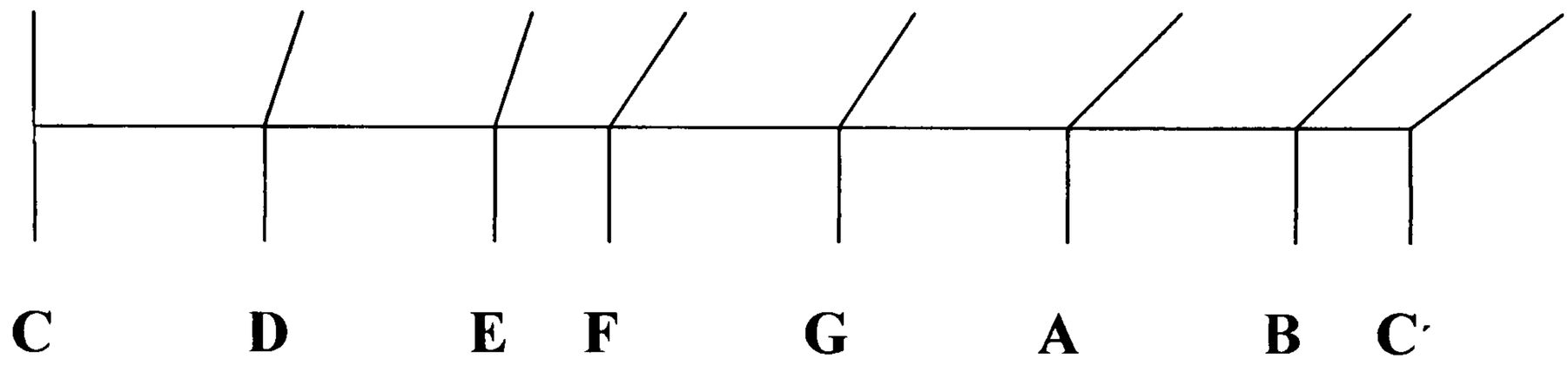
[21] See Raffman (1993) on the detection of musical nuance.

[22] See Burns and Ward (1978): 456. See also Luce (1993), Part IV.

between the C′ and C#′ is a difference of a half-step, and as the difference between the C′ and C#′ would be like the difference between the notes B and C′, we would expect that subjects should be able to recognise such an obvious tonal shift. However, this is just what Shepard and Jordan's experiment showed that subjects were incapable of doing.



The Stretched Scale Experiment

Figure 7.6

Shepard and Jordan presented the stretched scale to subjects in both ascending and descending sequences. After both sequences, the subjects were then presented with the *original* starting note as a test tone and were asked whether the note was too high in pitch, too low or 'about the same' as the first note that the scale began on. Of course, this note was in fact the note that the scale began on, however when subjects were presented with the stretched ascending sequence, 86 percent rated the note as too low, while only 9 percent correctly identified is as about the same. When subjects were presented with the stretched descending sequence, 68 percent rated the original starting note as sounding too high, while only 25 percent correctly rated it as about the same.[23]

In their experiment, the auditory stimulus that subjects are presented subtly subverts the physical relations of tone and yet subjects overwhelmingly still hear the stimuli as having the expected tonal relations. This result is interesting because of the way that subjects seem unable to notice the subtle shift in the scale. The stretched scale preserves the uneven spacing of the intervals of a major key, yet this scale violates the most centrally important musical interval—the octave. Despite this a statistically significant portion of subjects fail to notice the octave violation. It is interesting that

these subjects seem to hear the stretched scale as a correctly formed major scale. Shepard and Jordan explain this by suggesting that 'each successively higher tone, being slightly sharp, might be accommodated by a small upward adjustment of the whole diatonic schema'.[24] These results are consistent with the postulation of an internalised schema.

7.5 *Pitch Perception*: *The Psychologist's Hypothesis*

How do the results of these experiments fit into the general picture of pitch perception? The psychological explanation for the representation of musical pitch goes like this: musical pitch is not reducible to the physical properties of sound waves. The representation of musical pitch involves both the representation of pitch height as well as octave equivalence. Pitch height is just the representation of the physical frequency of a sound; octave equivalence, on the other hand, implies that a subject hears a certain class of tones as standing in certain relations to other tones in an harmonic context. The relations that these tones stand in to each other are relations of relative stability. These stability relations can be expressed as a tonal hierarchy. Listeners recognise sounds as standing in certain tonal relations to other sounds by comparing the incoming auditory stimulus to an internalised schema. It is by identifying the unique intervallic relations that a sound stands in to other sounds that allows a listener to identify tones by pitch class. The suggestion, then, is that to hear a sound *as* a musical pitch is just to hear it as falling into some relational category within the tonal hierarchy. Hearing a sound as a musical pitch essentially involves representing the sound as fulfilling some role within the musical context.[25] The view is best summed up by Krumhansl where she says:

> Listening to music, we hear the sounds not as isolated, disconnected units, but integrated into patterns. Our perceptual experience goes beyond sensory registration of single musical events. Sound elements are heard in context, organised in pitch and time, and are understood in terms of their functions within that context. The absolute pitch of a particular tone is less important to the listener than the intervals it forms with surrounding pitches.... The listener appreciates the organisation of a musical work by assigning significance to the sounded elements according to their roles in the musical context, and by integrating them into the broader pattern.[26]

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[23] Shepard and Jordan speculate that the reason why subjects seemed to perform worse when presented with the stretched sequence in ascending order was because scales are more commonly played and sung as scales in ascending order.

[24] Shepard and Jordan (1984): 1333.

[25] The reader may notice here a certain closeness to Gestalt theory. Much of the empirical evidence on musical perception is presented with this as a background hypothesis. For an overview of how the empirical evidence fits with Gestalt theory, see Krumhansl (1990): Ch. 6.

[26] Krumhansl (1990): 3.

So following the psychologists' suggestion, my thought is that auditory-events are represented as nothing more than sounds with no musical significance and represented simply along the one-dimensional spectrum of frequency until they are heard as being endowed with some musical function, and this endowment is something that is provided by a subject's internal auditory processing system semi-independently of the objective quality of physical frequency. (I say 'semi-independently' because certainly there must be something about the objective quality of the sound that makes it apt for hearing it in a certain way, but it is important to remember that the objective qualities of a sound can be overruled by musical concerns when it comes to be represented as possessing tonality as Shepard and Jordan's stretched scale experiment is meant to show.) I take it that Krumhansl and Shepard's probe tone study illustrates the stability relations between tones within a tonal context while Shepard and Jordan's stretched scale experiment demonstrates how listeners must order incoming auditory stimuli in reference to an internalised schema of intervallic relations. There is of course a very large area of concern surrounding how it is that a listener comes to acquire such abilities. Before concluding this chapter, I would like to say something very brief about this.

How does a subject come to possess such a psychological capacity? Is it innate—that is, does our possession of this capacity have a biological origin? Or are its origins based in experience? There have been may attempts to account for this in biological terms. While many of these often seem quite plausible when restricted to certain musical cases, they often fail to encompass the wide range of musical phenomena. For instance, they often work very well when restricted to examples of major key tonality, but will fail to account for minor key tonality.

While some perceptual capacities do appear to be innate—such as the recognition of octave equivalence or memory for sequences of tones—many cognitive scientists argue that experience plays the strongest role in the acquisition of musical sensitivity.[27] The

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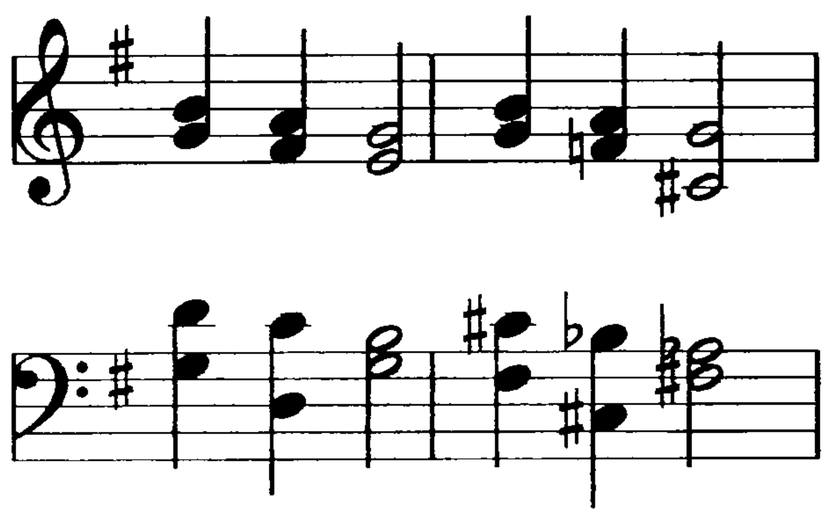
[27] As an example, one interesting supposition is based on the commonality of intervals within the Western diatonic major key. Certain intervals occur frequently in the major key while other intervals occur very infrequently. For instance, the most common interval is the octave—taking the seven pitch classes within the major key, all of these have an octave. The second most common interval is the perfect fifth and the perfect fourth—there are six perfect fifths in the major key and six perfect fourths. In decreasing order of commonality, the remaining intervals are five major seconds, four minor thirds, three major thirds, two minor seconds and one tritone. It might then be thought that a perfect fifth is a pleasing and stable interval because of our familiarity with hearing perfect fifths while the tritone is such an odd and unstable interval because of its relative rarity—we are more use to hearing perfect fifths and so expect to hear them more often, and these expectations need to be built up through experience. While this is an interesting suggestion about the relative stability of intervals, it does not give us any means of

supposition is that there must be a period of enculturation during which a subject becomes habituated to the musically salient commonalities of a particular culture, or to a particular tonal system. The subject must move from simply hearing sounds as having certain physical characteristics (frequency, intensity and duration) to hearing sequences of sounds as having certain normative (musical) characteristics. It is this move to normativity—to a listener's having expectations about what the music ought to do—that is thought to endow auditory experience with tonality.

The general hypothesis that empirical psychologists offer is that this feeling of stability is due to the listener's having built up a set of expectations of what the music of a certain culture commonly does. If this were so, then the effects of this period of learning must be demonstrable—it must be possible to show that a listener's perceptual capacities do indeed change and improve over time. For illustration, I will review the results of one such experiment. In an experiment by John Sloboda,[28] five groups of subjects were played four different types of musical examples in order to test the subjects' sensitivity to harmonic correctness and incorrectness. The subjects were grouped by age, the five age-groups being 5-, 7-, 9-, and 11-year old children and one adult control group. Each were played short examples that grew increasingly more difficult, each requiring greater listening skill from the subject. In each experiment, two short musical phrases were presented, one correct and the other—the test case—'incorrect'. The subject's task was to identify the incorrect one. The first example was of a short three-chord sequence in which the incorrect phrase contained highly dissonant chords.



(a) (b)

Figure 7.7: Test 1

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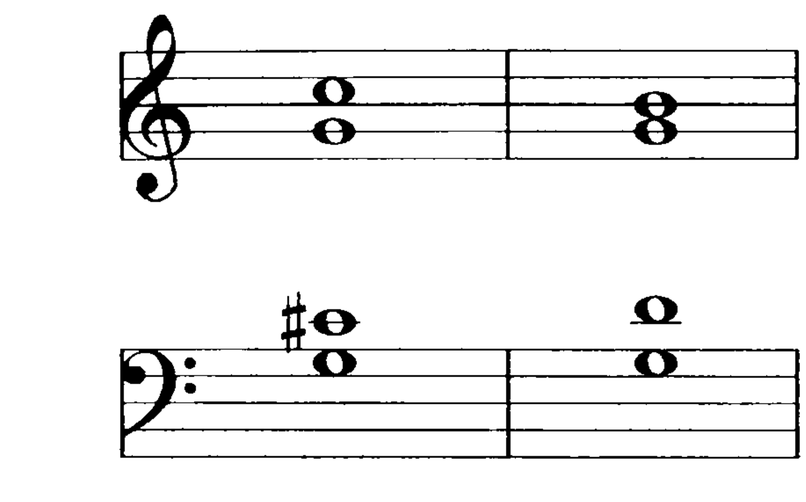
understanding notes within a particular key. It may be that perfect fifths are such common intervals as to be inoffensive (or even boring) when compared with tritones, but we want to understand why certain notes sound more consonant than other notes in a particular context. In order to explain the kind of stability relations described by the tonal hierarchy, some other explanation must be sought.

[28] As reported in Sloboda (1985), pp. 211-215.

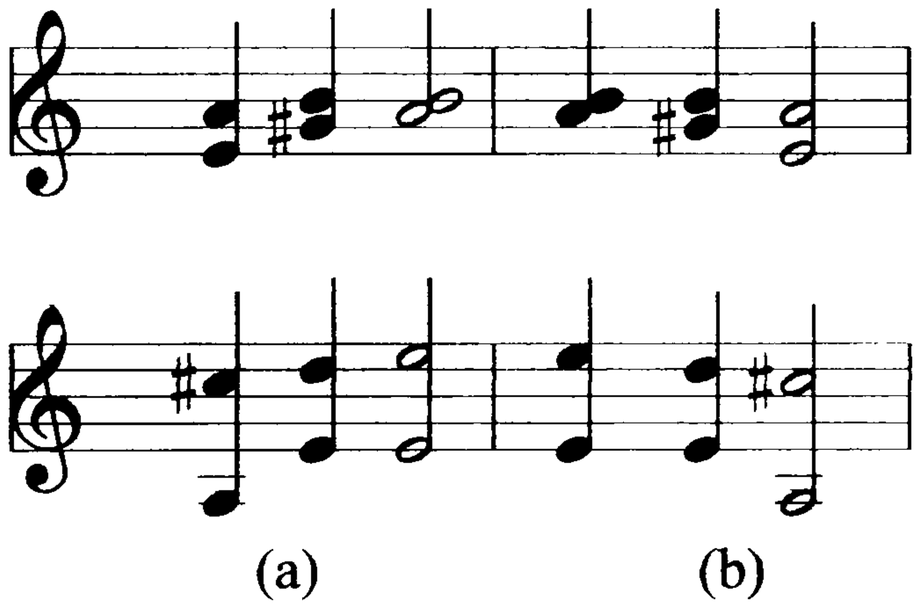
The second example presented a single chord where the incorrect one was erroneously constructed.



(a) (b)

Figure 7.8: Test 2

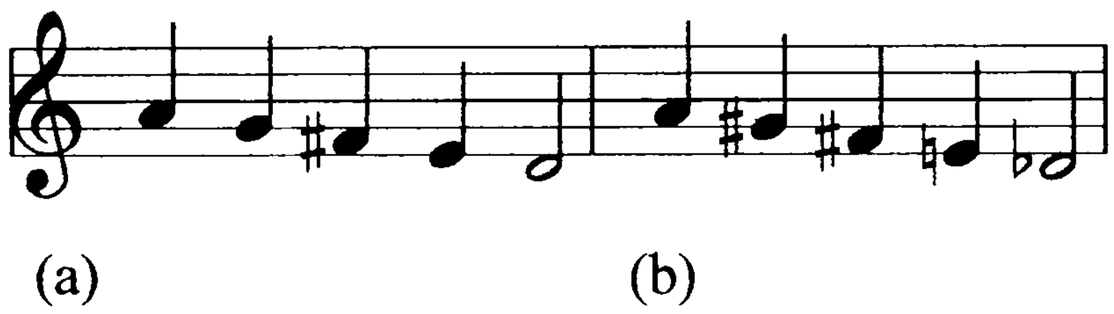
The third example was again a short three-chord sequence, the correct one being a perfect cadence and the incorrect one being constituted of the same chords but played in reverse.



(a) (b)

Figure 7.9: Test 3

The final example was of a single unaccompanied melody line in which the tonality of the incorrect line was obscure.



(a) (b)

Figure 7.10: Test 4

The results (see Table 7.3 below) reveal that children at five-years-old performed only marginally better than chance on the first test and performed poorly on the other three tests. Children do not perform well on the second and third test until the age of

seven, and do not perform well on the fourth test until nine. However, by the age of nine children perform as well as adults on the first and second tests, and they perform as well as adults on the third test by the age of eleven. While children perform well on the fourth test by the age of nine, they do not improve until much later.

Age	5	7	9	11	Adult
Test 1	7.3	9.1	11.4	11.8	12.0
Test 2	5.5*	7.7	9.5	9.3	10.6
Test 3	5.6*	7.3	9.3	10.5	11.6
Test 4	6.4*	7.3	9.7	9.6	11.6

Table 7.3 [29]

As previously mentioned, other empirical evidence suggests that children as young as one month can exhibit perceptual sensitivity to differences in pitch, and can even detect changes in a sequence of tones. Unfortunately this evidence cannot be extended into the claim that infants are responding or attending to the perceptual stimulus *as* music. As argued above, the perception of musical pitch cannot be reduced to physical frequency, and nor can we assume that an infant's responsiveness to differences in frequency show anything about their responsivity to tonality. What is lacking in infants is the ability to show any preference for or detect 'mistakes' in phrases that demonstrates a concern for the musicality of the sound. What Sloboda's experiment suggests is that a subject's response to auditory stimuli *as* music must be gradually developed over an enculturation period. Of course I am not suggesting that the results of one experiment should be taken as conclusive evidence. These results should be compared with other research in this area, and the interpretation of these results should be carefully examined. However, if these results were accepted, then for my purposes the suggestion would be that the sort of abilities that a listener must possess in order to hear sounds as music must be developed over time during a period of enculturation, and therefore so too would the phenomenology of their perceptual experience develop over time.

[29] Scores are based on a scale of 1 to 12, 12 being the highest reflecting that the subject correctly identified the incorrect example in each pair. Guessing at random would give a score of 6. Scores that are marked (*) are not statistically significant from random guessing. Scores that are underlined are not significantly different from one another. For more on this experiment, see Sloboda (1985): 211-215.

7.6 *A Strong and Weak Interpretation of the Hypothesis*

Relating this to my overall project, there are two possible interpretations that we could give using the psychological hypothesis. The strong interpretation would be that listeners must possess a certain psychological mechanism (or set of psychological mechanisms) that are necessary for the representation of musical pitch and that these psychological abilities count as conceptual abilities. However, this interpretation is very controversial. While I have argued for a loose definition of concepts that would include things such as the cognitive abilities required for spatial reasoning, many philosophers would not accept the sort of psychological abilities that I have described here as concepts. I offered a definition of concepts based on the idea that concepts are inferential or recognitional abilities that a subject exercises in thought, these being akin to the sort of cognitive abilities associated with 'knowing when'. While accepting this, some philosophers may still reject that the kind of psychological abilities that I have described as being necessary for the representation of musical pitch would still not count as either inferential abilities or recognitional abilities. What sort of inferences do these abilities allow the listener to make? And how can these abilities be *recognitional* abilities when the process of tonal schematisation that I am describing is not a process of *recognition*; it seems as though musical experience is not recognised, rather it is constituted by the process of schematisation. Indeed, some psychologists would not accept these as conceptual abilities either. Some psychologists who write about schemas argue that these do not count as concepts. Rather they are the preconceptual psychological abilities upon which lie the foundations of conceptual thought.[30]

If these objections were accepted, then what alternative would be left? We might be tempted to look more closely at the Mind-Independence Constraint. Though it might be rejected that the sort of psychological abilities required for the representation of musical pitch should count as concepts, it cannot be rejected that musical perception is strongly mind-dependent. The psychological hypothesis states that tonal relations are not mind-independent properties of sound-events; rather they are mind-dependent properties of auditory experience. The contents of musical experience clearly cannot satisfy the MIC, so an alternative weak interpretation of the psychological hypothesis might require us to create another level of distinction between conceptual and nonconceptual content.

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[30] See for instance the discussion of 'image schemata' in Johnson (1987).

Perhaps there is a meaningful distinction to make between *mediated* and *unmediated* contents of perceptual experience. Unmediated contents of experience would be those nonconceptual contents that satisfy the MIC, like the perception of shapes or colours. There are no mental abilities that a subject must possess in order to represent shape properties or colour properties in the contents of their experience. Mediated contents, on the other hand, form a middle ground between the nonconceptual-unmediated contents and conceptual contents. Mediated contents do not require the subject's possession of any concepts, but they do require the possession of a special cognitive ability in order to represent some property in the subject's perceptual experience. On this weak interpretation, the contents of musical experience would be nonconceptual-mediated contents as the listener must possess an internal schema for the ordering of the incoming auditory stimuli into discreet pitch classes, and the listener must hear tones of a certain pitch class as standing in certain stability relations to other tones within a musical context forming a hierarchy of stability relations.

My project in this dissertation is to demonstrate the untenability of the phenomenological claim for musical understanding. The question we must ask in light of these two interpretations of the psychological hypothesis is whether the strong interpretation is required to undermine the phenomenological claim, or is the weak interpretation enough. While I would still wish to defend the strong interpretation, I think that the weak interpretation would be enough to reach the conclusion that I want—that the phenomenological claim for musical understanding is untenable as it is not the case that the phenomenology of musical experience does hold in common between both trained and untrained listeners. The empirical evidence reviewed in this chapter demonstrates how the contents of musical experience are dependent upon the listener's possession of a certain psychological capacity, and there is some evidence suggesting that a listener's sensitivity to musically salient qualities develops over time. I will proceed in the next chapter to examine DeBellis' weak argument for nonconceptualism in musical experience. I will criticise his view using the strong interpretation of the psychological hypothesis. If the strong interpretation is correct, then the contents of musical experience cannot satisfy the MIC, and DeBellis' nonconceptualism is false. If the strong interpretation is incorrect, then we must decide how the weak interpretation impacts upon DeBellis' nonconceptualism.

CHAPTER EIGHT:

DEBELLIS' WEAK ARGUMENT FOR NONCONCEPTUALISM

DeBellis' weak argument claims that a listener can be attributed an auditory mental state that represents a sound as being a certain (musical) way though that listener lacks the particular music-theoretic concept that would normally correspond to a mental state having that content. The supposition is that a listener can be attributed a hearing ascription described in one of the representational theories of music discussed in Chapter Three and Four—GTTM, Schenkerian analysis, or the relative chroma model—and while listeners could be attributed content in, say, a GTTM graph, the listener does not need to possess the music-theoretic concepts that would characterise the content of that graph. The example DeBellis offers is of an intermediate ear training student that hears a certain note that her instructor has played on the piano as being a certain way though she is unsure what way that is because she lacks the concept to describe how she hears it. If the note being played is a G and she hears it as being the *5* of C-major, DeBellis claims that she can then be attributed a content-bearing state that represents that '*x* is a *5*', and this content describes the way in which she hears it.[1]

My concern, however, is this: suppose that on Twin Earth her counterpart also hears the note G played on the piano, but this Twin Earth ear training student hears it as being the *1* of G-major. The question is, in what way do these two worlds differ? If they were thought to differ in some way that could satisfy the Mind-Independence Constraint, then this would be for them to differ in respect of the external properties of the sound waves. But this is not the case, as in both the actual world and the counterfactual world the listener and the Twin Earth-listener hear sounds of the same type. In all external or non-mental respects, the physical conditions on Earth and on Twin Earth would be indistinguishable. We should then consider whether the difference between these two worlds is a mind-dependent difference, after which we will then be able to consider how this impinges upon DeBellis' weak argument.

My argument against DeBellis will be that if the contents of musical experience are nonconceptual, then, when we are faced with some ambiguous musical figure that could

adequately be accounted for by either of two non-identical representational states, the difference between these two mental states must be due to the representation of some adequately mind-independent state of affairs, as what is responsible for distinguishing nonconceptual mental states can only be relations to external properties or states of affairs. However, I claim, no such difference in the conditions of the external world exists in these cases of ambiguous musical figures. It would then follow if this is true that any difference between two perceptual states that suffice to represent the same ambiguous musical figure must be a mind-dependent difference. If we accept the strong interpretation of the psychological hypothesis from the previous chapter, then this failure to satisfy the MIC would mean that the contents of musical experience cannot be nonconceptual. However, if we can only accept the weak interpretation, then the contents of musical experience may be nonconceptual but mediated by a necessary cognitive ability. In this chapter, we will examine DeBellis' weak argument for nonconceptualism and determine whether the strong interpretation of the psychological hypothesis causes a problem for DeBellis. If it does not, then we will decide whether the weak interpretation is enough to undermine the phenomenological claim. I will start by reviewing DeBellis arguments and motivations for his claims about nonconceptualism for the contents of musical experience.

8.1 *Statement of DeBellis' Weak Argument*

In the Chapter Four, we saw how DeBellis defends his strong intentional theory of music perception arguing that the phenomenology of musical experience is precisely what descriptions of music in GTTM or Schenkerian analysis attempt to capture. The graphs that these theories of musical analysis provide, he claims, illustrate the contents of musical experience. An important point for DeBellis is that both psychological and music-theoretic hearing ascriptions can be attributed to listeners that do not possess those concepts that characterise those contents. He claims that a listener may be attributed a mental state with some musical content that corresponds to either a Schenkerian or GTTM graph—say, hearing C/F-sharp as the dominant of G-major—though the listener lacks the concept 'dominant of G-major'. As such musical hearing

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[1] For discussion of DeBellis' arguments, see Levinson (1996b). For an alternative version of nonconceptualism in musical experience, see Luntley (2003). For a nonconceptualist account of our perception of rhythm, see Roholt (unpublished).

is meant to describe the phenomenology of a listener's experience of some music—musical graphs of the GTTM or Schenkerian style are meant to describe the content of musical experience as it is represented at the listener's personal-level of experience. DeBellis thinks that such ways of hearing are meant to apply not only to musicians and music theorists—those who have had extensive training in listening to and categorising musical phenomenon—but to untrained listeners as well.

This nonconceptualist strategy is central to DeBellis' view of musical understanding: his view is that, when an untrained listener hears the C/F-sharp dyad as the dominant of G-major, they hear it *in the same way* as the trained listener—that is, both the trained and the untrained listener can be ascribed the same type of perceptual experience, though the untrained listener of course has no means of reporting or ascribing to themselves such perceptual states. Thus, in the mind of an untrained listener, these perceptual contents are weakly nonconceptual: 'one can satisfy the attribution without possessing the (music-theoretic) concepts contained in the attribution'.[2] What is implicit in DeBellis' account is his belief that the commonality of these two listeners' phenomenal experience is due to the content's being nonconceptual. DeBellis thinks that if the contents of musical experience were conceptual, then the untrained listener would be at a distinct advantage. By defending nonconceptualism for the contents of musical experience, DeBellis takes himself to be doing some justice for the untrained listener.

This is the way that DeBellis argues for the weak nonconceptual claim. To say that some perceptual state is nonconceptual, on DeBellis' view, is to say that there is an epistemic inequivalence between the perceptual state and the sort of belief that would normally characterise such belief states. A listener might be attributed hearing that *x* is F—say, 'S hears that C/F-sharp as the dominant of G-major'—and yet lacks the conceptual abilities requisite to entertain the belief that 'C/F-sharp is the dominant of G-major'. The untrained listener's perceptual state is epistemically inequivalent to the corresponding belief state in that simply being in the perceptual state does not ensure that the listener is in or can have the associated belief. For the trained listener, it might be the case that being in the perceptual state is (sometimes) part of what it is to be in the belief state, but the point is that being in a perceptual state is not *all* there is to being in a belief state.

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[2] DeBellis (1995): 27.

To demonstrate this to be the case, DeBellis goes on, the epistemic inequivalence must amount to more than just a listener's inability to form the belief that, e.g., '*x* is the dominant of G-major'. Epistemic inequivalence would be demonstrated if we could find a divergence of belief analogous to Frege's Hesperus-Phosphorus case: for a listener who does not know that the names 'Hesperus' and 'Phosphorus' both refer to the same planet, a listener who understands the meaning of 'Hesperus' might understand what is being asked of the question 'Is that Hesperus shining?', though they would object to the thought that 'Hesperus is shining' when looking up at Venus in the morning. The listener then believes that 'Phosphorus is shining'. While not knowing that the names have a common referent, they are in no position to accept the thought that 'Hesperus is shining' in the morning. Epistemic inequivalence requires that it must be possible to believe one thing while doubting the other.

To show how this works in the musical case, DeBellis needs to construct a plausible case where a listener might understand what, e.g., being the dominant of G-major is while doubting that '*x* is the dominant of G-major'. (For simplicity, and to remain faithful to DeBellis' discussion, the following argument will see a return to the psychological theory of representation discussed in Chapter Three—the relative chroma model. And, of course, at this point in DeBellis' argument, attributions of this sort are taken to be weakly nonconceptual.) The case DeBellis presents is that of the 'intermediate ear training student':

> Imagine a sophomore music theory student taking an ear training test. Her task is to label the pitches of a tonal passage she hears with scalestep numbers [chroma] in the key of the passage. Since her ear training skills are only average, she does not always know the right answer. So there is some pitch *x*—a *5*, say—such that she is in doubt as to whether it is a *5*; she is not disposed to assent to '*x* is a *5*'.
>
> ...For our listener, [learning that] '*x* is a *5*' is informative; when her instructor tells her, 'That was a *5*', it is a genuine "extension of her knowledge", a belief she did not already possess.[3]

What is important in the intermediate-listener case is that the second-year ear training student must be in doubt as to whether the way that *x* sounds to her is what it is for the belief that '*x* is a *5*' to be true. And DeBellis says that 'having such doubt entails that one does not have the belief expressed by the sentence, and, therefore, whatever hearing a sound-event as a *5* is, it cannot be that belief'.[4]

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[3] Ibid.: 36. In terms of the plausibility of this example, I can attest to its accuracy through personal experience. Having suffered through two years of ear training (which many students spitefully refer to as 'ear *straining*'), these are not skills that are acquired easily.

[4] Ibid.

This is a case of the argument from perceptual learning, referred to in Chapter Five above, which is a strong motivation underwriting DeBellis' view of musical perception. To remind the reader, the argument from perceptual learning is the claim that perceptual concepts are learned empirically. For this to be a real case of *learning*, the listener cannot possess the concept in advance, so the concept cannot be playing a role in the perceptual experience. Thus, in order to acquire some perceptual concept empirically requires a nonconceptual sensitivity to the relevant feature of perceptual experience. And this is what DeBellis claims to be happening in the case of the ear training student's learning what it is for *x* to sound as a *5*. The ear training student must be able to hear *x* as being a certain way, and hearing this way she then learns that this is what it is for the belief that '*x* is a *5*' to be true. This requires that the student must understand what it is theoretically to be a *5*. So she possesses the capacity to believe that '*x* is a *5*', but what she lacks is the perceptual knowledge that the belief 'that is a *5*' corresponds to the way in which *x* sounds. DeBellis claims that she would then find it informative to learn that the way that *x* sounds is just what it is for *x* to be a *5*.

To summarise, the content of musical perception is weakly nonconceptual, DeBellis claims, when listeners may be perceptually sensitive to musical qualities such as those posited on the relative chroma model of pitch perception without requiring that the listener have any familiarity with the related music-theoretic concepts. And DeBellis takes this to be shown by his case of the intermediate ear training student. In this case, when an intermediate listener hears a piece of music, they can be attributed a certain perceptual content—that *x* is *F*—that captures the way in which the listener hears the music in music-theoretic terms though they are unable to either assent to or deny that *x* is *F*. On this view, a listener may possess the conceptual capacity to entertain the *theoretical* belief that *x* is *F* while still lacking the capacity to recognise that *x* is *F* in their perceptual experience. These sort of hearing ascriptions are weakly nonconceptual as it does require *some* understanding of the music-theoretic concepts. That perceptual content is weakly nonconceptual in this way also means that hearing ascriptions might themselves be some kind of belief, though distinct from music-theoretic beliefs. Thus the commitment to what DeBellis calls the Belief Thesis is not inconsistent with weak nonconceptualism.

Nonconceptualism, even the weak sort that DeBellis offers describing the abilities of intermediate listeners, requires the satisfaction of the MIC. To remind the reader, nonconceptualism is the claim that a listener can be attributed a mental state with a

certain content even though the listener may lack those concepts that would normally characterise that content; the contents of perceptual experience are typical examples of nonconceptual contents. When perceptual experiences are veridical, they have the particular contents that they do by virtue of their representing objects, properties or states of affairs in the external world; thus perceptual experience represents the world as being a certain way because the world is that way. If this is true, then nonconceptual contents typically represent objects, properties or states of affairs of the external world. The MIC claims that perceptual contents can be nonconceptual only if the representation of some object, property or state of affairs does not require a listener to possess any special conceptual ability for the representation of that property in their perceptual experience. Therefore, if a listener S hears the note G as the *5* of C-major and the content of this perceptual state is thought to represent the nonconceptual content that '*x* is *5*', then to satisfy the MIC there must be some external state of affairs that accounts for *x*'s sounding to be *5* to S, which can be described independently of *x*'s being heard by S. It must be the case that the mere representation in perceptual experience that '*x* is a *5*' does not require any special conceptual ability. My worry is that this cannot be correct—that the MIC fails for the sort of hearing ascriptions that DeBellis is concerned to describe—because the representation of music does require a special conceptual ability, which seems to be evident when one examines the empirical data on music perception.

8.2 *Criticisms of DeBellis' Weak Argument*

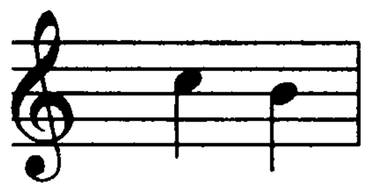
To show how it is that musical perception of the weakly nonconceptual kind fails to satisfy the MIC, we should consider cases of tonally ambiguous hearing ascriptions. As discussed in Chapter Seven, what is *musical* about musical perception is the representation of certain significant relations holding between individual sound-events. However, there are some cases where the individual sound-events of a particular sequence could be described as having some musical relation, though it is ambiguous exactly what relation that is. Peacocke presented such a case in his argument for sensational properties of experience when he claimed that the difference between a listener who hears six beats as organised into two triplets (♩♩♩ ♩♩♩) and a listener who hears those six beats as organised into three duplets (♫ ♫ ♫) is a difference of their

representing different sensational properties, as discussed in Chapter Four (p. 55). This is a case where a listener can hear the beats being organised into some musically salient rhythmic relation, though it is ambiguous which relation correctly describes the way that the music is. Such cases can also be constructed for tonal relations as in the tritone case (p. 56). These are cases where a listener may represent some sound-event under either of two different descriptions where both descriptions could be correct. The listener hears the sound-event as being related to some particular musical context, but it is ambiguous which context is the correct one. Indeed, in such cases, the notion of 'correctness' may seem irrelevant. Does 'correctness' mean veridical—representing the world in the way that it is? If so, then either mental state would do this successfully. Some ambiguous musical figures such as the tritone case can be accounted for by two phenomenally distinguishable musical descriptions. On the other hand, if one mental state is to be preferred over the other as the 'correct' one, then some notion other than veridicality is required. Perhaps 'correct' means hearing the music in the way that the composer intended. If so, then this requires something more than what can be given by the contents of naïve perceptual experience. The way in which we account for the problem of tonal ambiguity seems to be the central problem of DeBellis' argument for weak nonconceptual content. I will argue that the problem of tonal ambiguity cannot be accounted for in a way that would satisfy the MIC, and it is for this reason that DeBellis' weak argument fails.

The problem with tonal ambiguity for DeBellis' weak nonconceptualism is that there is an important difference between representing a sound as being, say, the tonic of some key rather than its being the dominant—these are phenomenally distinct auditory experiences. On the intentionalist theory of musical experience (that DeBellis and I agree on), the phenomenal difference between these experience can be accounted for in this way: to represent a sound-event as being the tonic is to hear it as standing in certain musically relevant relations to other tones, that is, to hear the note as having a particular musical function. To represent a sound-event as being the dominant, on the other hand, is to hear it as having a very different musical function. The problem, however, is that either musical ascriptions of an ambiguous pair could satisfy the way that the world is—the difference between a listener who represents some constituent tone of a sound-event as being the tonic and some other listener who represents the same tone as being the dominant both represent a sound of the same physical frequency in the end. Their

representational states take the same referent, though they differ in sense.[5] There is no difference in the way that the external world has to be in order to be correctly described by one ambiguous figure or the other—both mental states are satisfied by the same state of affairs.

To revisit a case that we considered early on in this dissertation, in the case of hearing the note B (490Hz) followed by C (523Hz) as in Figure 8 below, what does it mean to hear these sound-events as being related in some musically salient way?



C B

Figure 8

One suggestion would be that this would require of the listener the ability to identify these notes as 'C' and 'B', however this is surely much too strong. Such a recognitional ability is only had by listeners who possess perfect pitch, and it would clearly be wrong to think that a listener must possess perfect pitch in order to hear these sound-events as being musical tones. Rather, all that is required in order to hear these two sound-events as musical tones is for the listener to hear these tones as having some musical (i.e. tonal) function. But these tones will have different functions within different tonal contexts. As discussed previously, in the key of C-major, these tones would be the *1* and *7* (or in musical terms *do – ti*) and, on the relative chroma model, that is just how a listener would represent this sequence, as two sound-events represented by the tonal functions '*1 – 7*'. However, in the key of G-major, these tones would be the *4* and *3* (*fa – mi*).

Suppose a listener were to hear the sequence of notes in Figure 8 in isolation, say in an ear training class. If no tonal context is made explicitly, then it is left open whether the listener hears the sequence (and therefore represents it) as *1-7* or as *4-3*. What is crucial though is that, while either representational content would satisfy the external conditions on the way that the music is (that is, either representational state would be veridical if veridicality just means correctly representing the external conditions of the world), only one of these descriptions would satisfy the way that the listener hears the music. In this example, the listener hears Figure 8 either as being *1-7* or as *4-3*, and the

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[5] Here I am thinking of the physical frequency of the sound wave as the referent and the melodic function as its mode of presentation.

conditions for the veridicality of the representational state are agnostic on how the music is for the listener. Either representational state may be veridical, but only one of these captures the phenomenology of the listener's experience.

These mental states are distinct in that they do not have the same content (and are phenomenally distinct as well). As they are distinct, then these mental states must have different correctness conditions. However, there is no difference in the way that the world has to be in order for the world to be represented by one state rather than the other. Two distinct mental states can adequately represent precisely the same set of possible worlds—the two mental states are co-extensional. However, if we were to look at the correctness conditions for hearing ascriptions, we would find a different story. It would be incorrect to say of the subject who hears G as the *5* of C-major that they hear the G as the *1* of G-major. It would be incorrect as '*x* is a *1*' does not capture the way in which the subject represents the G (that is, it does not preserve the mode of presentation under which the subject represents the experience). Finally, if a subject's representational content employs a specific sense, then it must be the case that the subject possesses some capacity for the representation of this sense. Thinking of the subject who hears G as the *5* of C-major and her Twin Earth counterpart who hears the G as the *1* of G-major, the difference between these two mental states is that the two subjects refer to the same referent under two different senses. There is no mind-independent difference between these mental states; rather the difference is mental.

Perhaps DeBellis could resist this by arguing that the sort of musical hearing he has in mind is much more primitive than the sort I am describing. He might argue that a listener hears music as being a certain way but that this is not the same as representing the musical function of notes. However, I do not think that this line would be open to DeBellis as a listener's hearing a sound as a musical tone *requires* that they hear the tone as standing in certain hierarchical relations to other tones in a context. As the psychologists say, this is a psychologically necessary condition. This musically-function-laden way of hearing a sound is essential to representing a musical note, and as stated earlier it is this representation of musical function that is important in the perception of musical pitch, rather than representing a tone by note name or identifying the frequency of a sound. The level of musical hearing that DeBellis is describing is not more primitive than the level that I am describing—we are both talking about the way in which music sounds to an intermediate listener.

As discussed above, there is a real phenomenal difference between hearing *x* as a *5*

and hearing *x* as a *l*—the perceptual states that these hearing ascriptions would correspond to have very different representational contents, that is they represent very different musical qualities, just as the mental state that represents that 'Hesperus is shining' is a very different one from the mental state that represents that 'Venus is shining'. The most natural way of explaining the Hesperus-Phosphorus case is to attribute concepts to the subject. Consider this case: suppose that S believes that 'Hesperus is shining' and in the same world T believes that 'Venus is shining', and S does not possess the concept *Venus* and T does not possess the concept *Hesperus* (and each lacks the other concept, neither of them knows that 'Hesperus' and 'Venus' refer to the same planet). Thus, when S looks up at the sky and thinks that 'Hesperus is shining', and T looks up at the sky and thinks that 'Venus is shining', S and T are in different mental states even though their belief states refer to the same states of affairs, insofar as these pick out the same referent. In this case, there is no difference in the way that the world has to be in order for either subject to be in their respective belief states. These are of course propositional belief states; what we are interested in here are perceptual belief states. If we were to look for a visual case that was analogous to the case of Figure 8, one where two subjects perceive different qualities of an ambiguous figure, then I think one could be supplied by the duck-rabbit picture.

Suppose that S and T are both presented the duck-rabbit picture, where S lacks the concept *rabbit* and T lacks the concept *duck*. The intuition would be that S would see the duck-rabbit picture as a duck and could not see it as a rabbit as S does not know what rabbits look like. Similarly, when shown the picture, T sees it as a rabbit and cannot see it as a duck. Of course, there is no difference in the way that the world has to be in order for S to see the duck or for T to see the rabbit. However what is of interest is the way in which S's and T's perceptual states differ, both representationally and phenomenally. S's perceptual state represents very different intentional qualities than that of T's. But this difference is obviously due to their possessing different sets of concepts. Only a subject who does possess both concepts *duck* and *rabbit* will notice the ambiguity of the picture.

Now, contrast this against a case where I claim that the MIC does hold, say in the case of colour perception. Suppose S and T are shown a scarlet-coloured paper card. Imagine that S possesses the concepts *red* and *scarlet*, but T only possesses the concept *red*. S would assent to the statement that '*x* is red', as would T, but where S would also assent to the more descriptive statement that '*x* is scarlet', T would not. That is, T

would be in doubt whether 'scarlet' does accurately describe the coloured card that she was shown. This differs from the duck-rabbit case above in that we have no reason to believe that S and T are in qualitatively different *perceptual* states, though here they are in different *belief* states. What is common between S and T is that some external state of affairs obtains that is able to account for the qualitative similarity of S's and T's perceptual states. Further, if S and T were both shown a different coloured card, this time cayenne, and S also possesses the concept *cayenne* where T does not, both S and T should assent to the statement that 'that shade of red is different from that first shade', though only S would assent to the statement that 'this shade of red is cayenne'. T's perceptual experience is able to track changes in colour just as well as S's despite T's lacking the specific colour concepts that S possesses.

My suggestion, then, is that the cases of ambiguous musical figures are more like the duck-rabbit case than it is like the colour case: the difference between hearing *x* as the *5* of C-major as opposed to hearing *x* as the *1* of G-major is due to the listener's auditory experience organising what the listener hears in a different way. If tonality is not an objective property of sound-events but rather is something that is supplied by the mind in auditory experience, as the empirical evidence suggests, then any difference in the way that two subjects hear a piece of music cannot be attributed to any difference in the way that the world is. In the case of ambiguous musical figures, hearing ascriptions that differ as to their representational content and yet both equally get the world right do not differ in respect of the objective mind-independent properties that these perceptual states are tracking. The difference between these mental states cannot satisfy the MIC, therefore the contents of musical experience are mind-dependent.

8.3 *An Objection*

There is one serious objection that must be considered. It may be objected that my criticisms of DeBellis' weak argument fails to capture the distinction between conceptual and nonconceptual content—that the kind of abilities that I have described as being necessary for the representation of musical pitch simply are not conceptual abilities. For one thing, these psychological abilities operate at a subpersonal level, below the level of conscious thought. A theorist who held firmly that concepts are the constitutive elements of thoughts and beliefs—or, to put this in the language of conceptual abilities, that conceptual abilities are those abilities that operate at the

conscious level of thought and belief—would object to my account on the grounds that the psychological abilities that I am describing are not properly the conceptual abilities that figure in the contents of thoughts and beliefs. DeBellis could then accept that the representation of musical pitch does require some kind of subpersonal psychological ability while still maintaining that the contents of musical experience are nonconceptual at the level of conscious thought and belief. This is a serious objection, one that threatens to undermine my criticisms of DeBellis' weak argument for nonconceptualism. If one were to take conceptual abilities strictly to operate over the constitutive elements of conscious thoughts and beliefs, then one might insist that the subpersonal psychological abilities that I am describing simply are not conceptual abilities.

This objection is closely related to the problem noted at the end of the previous chapter, for this is really an objection against my strong interpretation of the psychological hypothesis. What I have argued for here, against DeBellis, is the claim that the contents of musical experience are dependent upon the listener's possession of a special psychological ability for the representation of musical pitch. As the discussion of ambiguous musical figures shows, the representation of musical pitch fails to satisfy the MIC. I do not see how this conclusion can be avoided. On a strong interpretation of this view, we might then argue that the psychological abilities required for the representation of musical pitch are to count as conceptual abilities. The kind of psychological abilities required for music perception are envisioned as being akin to the kind of conceptual abilities required for spatial reasoning, or the kind of conceptual abilities required for representing the orientation of an object (as discussed in Chapter Six). However, the strong interpretation requires further grounding in a plausible account of conceptual abilities. While my criticisms of DeBellis' weak argument for nonconceptualism may show that the contents of musical experience are mind-dependent, it is still uncertain whether this failure to satisfy the MIC really counts in favour of a conceptualist view of the contents of musical experience. My criticisms may be accepted by DeBellis, but, he may insist, that does not threaten the claim that these contents are nonconceptual, and he may press this objection along the lines give above—that concepts operate at the level of thought and the psychological abilities that I have described are subpersonal abilities that cannot count as concepts. Musical experience may require that the subject possess a psychological ability for the representation of musical pitch, but why should we think of these psychological abilities

as conceptual abilities?

In response to this objection, I can only restate that I find this account of conceptual abilities to be too strong. Reiterating my claims from Chapter Five, it cannot be the case that conceptual abilities operate only over the constituents of thoughts and beliefs. If we did hold this strong view of conceptual abilities to be the case, then it would exclude spatial reasoning to be instances of conceptual thought. There would be no easy way of forcing those abilities that are in operation in spatial reasoning to fit the thoughts-and-beliefs model of concepts. The notion of conceptual abilities as operating over the constituents of thoughts and beliefs cannot be an exhaustive account of conceptual abilities. While a subject's having a belief with content *p* certainly does require the subject must possess the right conceptual abilities for the representation of *p*, these cannot be the only conceptual abilities that a subject is able to possess. While the psychological ability that I am describing as being a necessary condition for the representation of musical pitch might be operating at a level below conscious thought, it is operating at the same level as spatial reasoning. If spatial reasoning requires conceptual abilities, then so too does the representation of musical pitch.

If the opposition to this view of conceptual abilities is firmly entrenched, then we might be forced to concede the objection and retreat to the weak interpretation of the psychological hypothesis. The objection reviewed here—that the psychological abilities required for the representation of musical pitch do not count as conceptual abilities—does not threaten the weak interpretation of the empirical evidence. The contents of musical experience *are* mind-dependent, they fail to satisfy the MIC. We should then consider what mileage we can get out of the weak interpretation.

8.4 *A Weak Argument against the Phenomenological Claim*

The strong and weak interpretations of the empirical evidence give us correspondingly both a strong and weak argument against the phenomenological claim. The strong argument against DeBellis' weak nonconceptualism is that musical perception is not nonconceptual because the psychological capacities required would fail the MIC. This conclusion would then threaten the phenomenological claim for musical understanding in that it would create a gap between the musical experiences of trained and untrained listeners. Untrained listeners cannot have musical contents of the same type as the trained listeners as the former lack the requisite conceptual abilities. As the untrained

listeners would lack the required conceptual abilities for the representation of musical contents, so we would have reason to expect that the phenomenology of their perceptual experience would not be as rich as the trained listener. So then there would be no guarantee that the phenomenology of musical experience does hold in common between trained and untrained listeners. However, the strong argument may be rejected on the grounds that the psychological abilities that it describes do not count as conceptual abilities. The weak argument claims that the contents of musical experience are mediated contents because of their failure of the MIC, though this claim would be consistent with the claim that these contents are nonconceptual. I will say a bit more about mediated contents.

By 'mediated contents' I mean contents that require a special psychological ability for the representation of some property. These would be contents that represent some property that is not reducible solely to any physical cause in the environment—the property that these represent has both a physical external cause and an internal psychological component. Strictly speaking, the represented property is not a property of the object of the perceptual experience, rather it is a property of the experience itself. On this proposal auditory experiences have the property of tonality, sounds do not. As such properties like tonality could be called either 'intentional properties' or 'tertiary properties'. Mediated contents, if they do exist, would be nonconceptual contents in that the requisite psychological abilities that the subject must possess do not count as conceptual abilities, because they operate at a level below conscious thought. However these contents form a special class of nonconceptual contents that are distinct from, for instance, those contents that represent shape or colour properties. These latter contents could be described as being 'fully nonconceptual'—they do not require that the subject possess any special conceptual ability in order for that subject to be in a certain content-bearing mental state, and the property that is represented in experience can be explained in terms of the subject's sensitivity to some feature of their perceived environment as the external cause of that represented property. Contents that are fully nonconceptual do satisfy the MIC.

On the strong interpretation of the empirical evidence there would be no need to distinguish between mediated and unmediated contents. On the strong interpretation, the notion of nonconceptual content is narrower than on the weak interpretation. On the former, nonconceptual content is restricted to those perceptual contents that do satisfy the MIC, and any contents that fail to satisfy the MIC would be conceptual contents.

On the latter, however, the notion of nonconceptual content is broader as some of these contents will satisfy the MIC and some will not. Both mediated and unmediated contents would be nonconceptual on the weak interpretation.

The weak argument against the phenomenological claim would hold that the psychological abilities required for the representation of musical pitch may be possessed to greater or lesser degrees in listeners. As was suggested by the developmental experiments conducted by Sloboda (pp. 136-138) musical sensitivity is something that develops over time. The supposition is that musical sensitivity develops as the listener's psychological abilities develop. The phenomenology of musical experience may not hold in common between two listeners due to a number of factors. It may be that two listeners differ in the degree to which their abilities have been developed, or it may be that two listeners differ with respect to the tonal system that they have been enculturated into. As these psychological abilities would be acquired through experience, then we may suppose that subjects who have had radically different past experiences may have developed different perceptual capacities. Some empirical evidence is starting to emerge that compares musical sensitivities between Western and non-Western listeners, however this evidence is quite sparse and incomplete partly because Western music has spread much beyond the West and partly because many of the researchers working in the psychology of music are working in the West. Relatively little data is available on the musical sensitivity of non-Western subjects.[6]

In terms of my overall project, the goal is to show that the phenomenological claim for musical understanding is unfounded—that is, I wish to show that the phenomenology of musical experience does not hold in common between all listeners. Both the strong and the weak arguments would suffice to make this claim. On either view the subject must possess a psychological ability for the representation of some musical properties. If one accepts my account of conceptual abilities, then the strong argument should work, however rejecting my account of conceptual abilities would seem to require that we adopt a distinction between mediated and unmediated contents. If this distinction is accepted, then we may retreat to the weak argument against the phenomenological claim.

In the remaining chapters I wish to tie up a few loose ends. First, in Chapter Nine I will examine DeBellis strong argument for nonconceptualism in musical experience.

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[6] However, see Carterette and Kendall (1999); Deutsch, Henthorn, Marvin and Xu (2004); Krumhansl (1990): Ch. 10; and Sloboda (1985): Ch. 7.

This is his claim that the contents of musical experience are not the same kind of mental state as belief states, and so a subject may be attributed a content-bearing mental state without the possession of any concepts whatsoever. I believe DeBellis does not give proper theoretical support to his claim and that a closer examination of the example he provides reveals the untenability of his position. Then in Chapter Ten I wish to present an alternative account of the representation of musical pitch. The motivation for writing this chapter is that, if we do accept my strong interpretation of the empirical evidence and hold that the psychological abilities required for the representation of musical pitch are conceptual abilities, then we must provide a plausible account of the representation of musical pitch, one that is able to account for both the physical properties of sound waves and the psychological properties of tonality. Finally, in Chapter Eleven I wish to examine one further interesting case where the contents of auditory experience may also fail the MIC, namely the auditory representation of spatiality. In this chapter I will apply the MIC to our perceived awareness of directionality through auditory experience and will enquire whether this too is a case that requires the listener's possession of a special psychological ability, or is this another case that would support the mediate-unmediated distinction.

CHAPTER NINE:

DEBELLIS' STRONG ARGUMENT FOR NONCONCEPTUALISM

9.1 *Statement of DeBellis' Strong Argument*

DeBellis offers two independent arguments for nonconceptualism. His second argument is meant to show that the contents of musical experience are not the same kind of mental state as belief states, where these latter present some information under a mode of presentation and, he claims, the former representations do not involve modes of presentation. DeBellis' strongly nonconceptual claim is the denial of what he calls the Belief Thesis—that musical hearing is a sort of perceptual belief (as discussed on p. 32), and that hearing ascriptions are ascriptions of perceptual belief. Again, a belief for DeBellis is a relation that holds between a subject and some information. The Belief Thesis is the claim that perceptual states are belief states of a certain kind, and belief states, we are told, are 'unified under a single concept or mode of presentation'.[1] Beliefs, if they are beliefs about the same thing, must be type-identical mental states, where this is 'for various tokens of that state to involve the same mode of presentation, to be exercises of the same concept'.[2] If a subject believes that *a* is *F* and believes that *b* is *F*, then of the objects *a* and *b* this subject believes the same thing, that is the subject believes that both are *F*. In belief statements such as these, '*F*' stands for the same thing in both instances. On DeBellis' view, the contents of beliefs exhibit generality. DeBellis' thought, then, is that if some mental state is a belief state, then at the very least subjects should be able to re-identify instances of that mental state—that is, if a subject is able to believe that *a* is *F*, then they should be able to believe that *b* is *F*. DeBellis' claim that the contents of musical experience are strongly nonconceptual is the claim that the contents of musical experience are not beliefs in this way and that this can be demonstrated by examining cases where a listener hears some musically salient property in two different contexts and fails to recognise them as being the same. As he says, 'in order to show that a certain state is not a belief, it is sufficient to show that different tokens of that state are not, as it were, unified under a single concept or mode

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1 DeBellis (1995): 58.

2 Ibid.

of presentation in this way'.[3]

The view of type-identical perceptual beliefs that DeBellis has in mind is the sort of functionalist view found in Armstrong (1968). A subject who is able to, e.g., sort coloured cards into piles of red and non-red cards demonstrates a type-identical perceptual belief. The claim is that the subject represent the perceptual state (that '*x* is red') under a mode of presentation (in this case the mode of presentation *red*) even in the case where they do not possess any further conceptual capacity utilising the concept *red* beyond its application to perceptual beliefs. So, each time they place a card in the red pile, they represent the perceptual belief under the same mode of presentation, which is just to say that the subject has a perceptual belief that they recognise as being the same in some phenomenologically salient way to some other perceptual belief. DeBellis' task is then to show that subjects might fail to recognise that two experiences do share some phenomenologically salient property even though the object of both perceptual states is similar in what should be a salient way. And if subjects do fail in this way, then DeBellis takes this to show that perceptual states are not belief states. This is DeBellis' strong argument for nonconceptual musical contents: it is a rejection of DeBellis' Belief Thesis, thus contents that are strongly nonconceptual are not types of beliefs.

The example DeBellis presents is one where a subject hears a melody where the same musical pitch occurs twice in that melody within a short space, and yet, oddly, many subjects often do not realise that the two pitches are identical. The example he gives is the first four measures of the American national anthem, 'The Star Spangled Banner':[4]

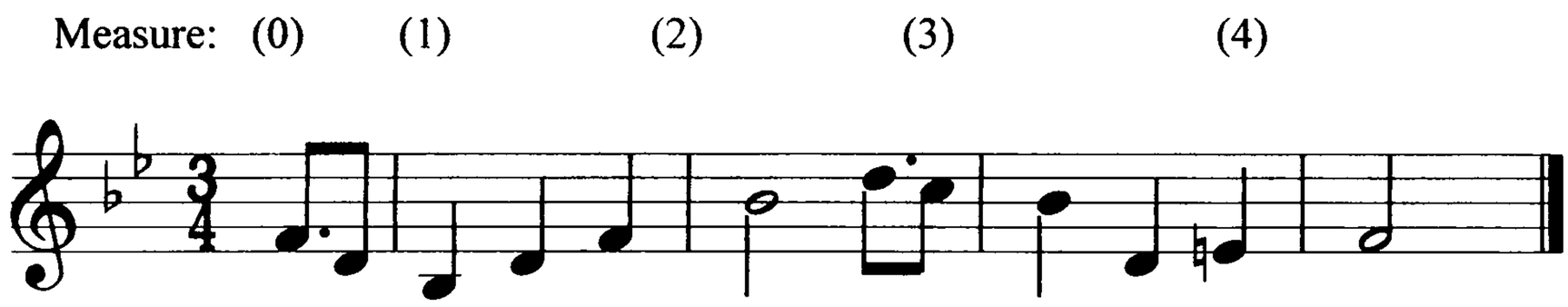

Figure 9.1

What we are interested in here are the notes that correspond to the two words in bold— the 'Oh' in the pick-up measure (0), and 'light' in measure four— in Figure 9.1. Both

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[3] Ibid.

of these notes are F's, which is the dominant of B-flat—the key of this tune. DeBellis claims that, as these are both notes of the same pitch, then they should be represented in a subject's auditory experience under type-identical representations. Now, crucially, if these type-identical states were belief states, then subjects should be able to recognise them as being the same, to distinguish between instances of F from non-instances of F, and to recognise when they hear F again. However subjects have a real difficulty with this example—most non-musicians do not notice that the first note in measure (0) is the same pitch as the first note in measure (4). As DeBellis says of this example, this is

> not simply a matter of not knowing what the label 'F' refers to; the listener cannot tell, in general, when two pitches of the melody are the same … and when they are different. He cannot reliably discriminate between same-pitch pairs and different-pitch pairs; he is not (in general) able to grasp them *as* the same. Yet, on the given theory, he has type-identical representations of such pitches; hence, that representations (*qua* type) cannot be a belief and cannot involve perceptual concepts of absolute pitch locations.[5]

The two instances of F in measures (0) and (4) are both represented by type-identical contents, and yet average listeners are unable to tell whether these two pitches are the same or not. DeBellis claims that these states therefore cannot be belief states—that they are not represented under the same mode of presentation—which is proven by the listener's inability to perceptibly recognise instances of the same pitch.

9.2 *Criticisms of DeBellis' Strong Argument*

The example DeBellis constructs is meant to be like the case of sorting colour cards into piles of red and non-red cards. This sorting ability is hypothesised as being due to the subject's exercising of a perceptual belief. But in the case of Figure 9.1, the subject seems to be incapable of exhibiting what could be thought of as an analogous kind of sorting ability, the ability to sort instances of hearing an F from instances of hearing non-F. Unfortunately, DeBellis does not examine why it is that subjects often have such difficulty with this example, rather he just presents this as an obvious case proving his point—that the listener's failure to re-identify the same pitch again in such a short span of time proves that the representations of the F's in (0) and (4) are not a belief states.

But there are two problems with this argument. First, the example is flawed—it contains a modulation—and second, even if we accept DeBellis' point about type-

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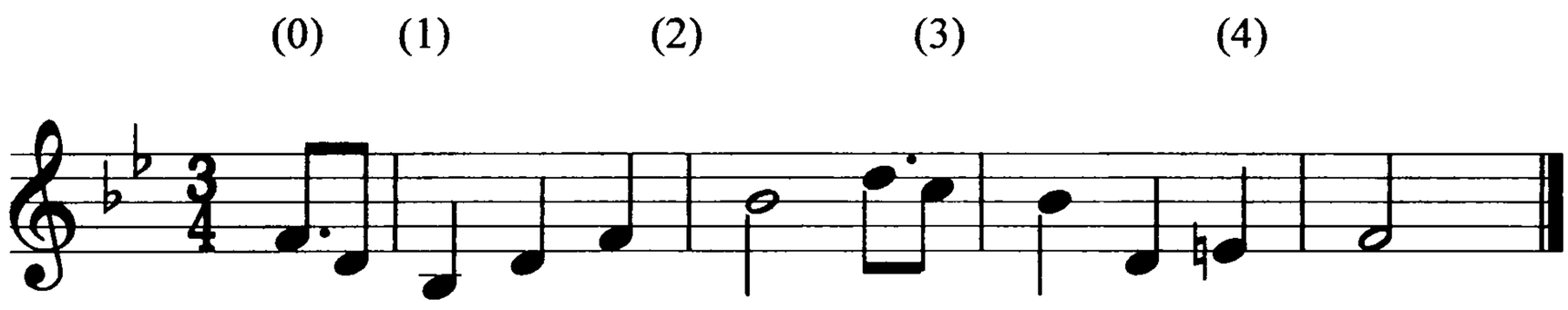
4 Ibid.: 62.
5 Ibid.

identical representations, this does not seem to demand that we accept his point about the status of these representational contents. Taking my first objection, the flaw in the example is that the F in measure (4) is preceded by an E-natural, which modulates the tonality of the succeeding section from the key of B-flat into the key of F. The thrust of DeBellis' argument is meant to be that a subject should be able to recognise the sameness of the note F in (0) to that of the F in (4), as he hypothesises that any token representation of F should be type-identical with any other token representation of F. And yet subjects typically do not recognise the similarity between these two pitches.

Considering the relative chroma model of pitch representation, I understand that view as arguing that pitch is represented as chromatic distance relative to some reference point, which is typically the tonic. The tune in Figure 9.1 begins in the key of B-flat-major, which, on the relative chroma model of representation, should make the first F in (0) the *5* of B-flat. But after the modulation in measure (4), the tonality has shifted to F-major, which would make the F in (4) the *1* of F-major—after the modulation in (3), the tune resolves to a different tonic. If the relative chroma model is accepted as a plausible account of the way in which melodies are represented in the contents of a listener's auditory experience, which DeBellis' seems to have accepted up to this point, then unsurprisingly listeners *should not* represent the F in (0) as being the same as the F in (4). Rather the F in (0) should be represented as the *5* of B-flat-major, and the F in (4) should be represented as the *1* of F-major. On the relative chroma model, subjects should represent this:



as this:

B-flat: **F:**
5 3 1 3 5 1 3 2 1 /6 7 1

Figure 9.2

Notice that the two F's are represented by different chroma values in Figure 9.2.

DeBellis' argument seems to rely on the claim that subjects are unable to detect the similarity between two notes in terms of *absolute pitch.* This is evident in the quote

above, where DeBellis says 'that representations (*qua* type) cannot be a belief and cannot involve perceptual concepts of *absolute pitch locations*.'[6] But why should they? We have not yet been given any reason to think that subjects should be expected to be able to do this—we have not been given any reason to believe that hearing ascriptions represent melodies in absolute pitch. Up to this point, we have been assuming the relative chroma model of pitch representation, on which the F in (0) is not type-identical with the F in (4)—again, the former is the *5* of B-flat-major whereas the latter is the *1* of F-major. Therefore it should be no surprise that subjects often don't notice the similarity in *absolute pitch* between the two F's—it is not absolute pitch that is represented on this model. What is salient to the representation of a sound as a musical tone is the identification of that sound as having a particular melodic function. It might be worrying if it could be shown that listeners are incapable of recognising when two tones have the same melodic function, but this is not what DeBellis has shown. All he has shown is that listeners cannot reliably tell when two sounds are the same frequency.

DeBellis' justification for thinking that the perceptual states that represent the F's in measures (0) and (4) ought to be type-identical is unfounded. There is no reason to think that these *should* be type-identical mental states. In fact, there is very good reason to believe that they are not type-identical: after the modulation, the first F in (0) is similar to the second F in (4) only in pitch, they differ as to their melodic functions. The case that he is describing is nothing like the case of sorting coloured cards into piles of red and non-red. If these notes are represented under some mode of presentation, then these would be the mode of presentation *5* for the F in (0) and the mode of presentation *1* for the F in (4). The example DeBellis offers fails because the two F's are distinguishable and so should not be type-identical representational states. These representational states represent the same sound as having two different melodic functions, therefore they are phenomenally distinct experiences, and therefore they possess different representational contents. In which case, it is no wonder that listeners cannot reliably tell that the two pitches in question are both instances of F.

My second objection to DeBellis' argument is that, even if we accept DeBellis' analysis of what is going on in the representation of Figure 9.1, this does not seem to demand that we accept that these states cannot be belief states. DeBellis' strong argument is intended to deny that perceptual states that represent musical experience are

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[6] Ibid.

a kind of belief state. He then presents Figure 9.1 as a case where a subject's perceptual state should be type-identical to another perceptual state that the subject was in only moments before, and yet average listeners are often unaware of the similarity between the two F-state-tokens. The explanation that DeBellis offers to understand why subjects often fail to type-identify the two instances of the F is that these mental states are not belief states. But that is simply moving too quickly.

DeBellis' claim that perceptual states must be type-identical if they are to be belief states that have the same content seems unfounded. Think again of the example of sorting coloured cards into piles of red and non-red cards. However, also suppose that the deck of cards the subject is sorting contains some cards that are different shades of red—some dark red, some light red—as well as cards that are different shades of other colours, such as green, blue, and yellow. If the subject's task is to sort the cards into piles of red and non-red, then the subject may still make one pile for all the differently shaded red cards even though they are obviously distinct shades of red. If the subject is a normal perceiver and is perceptually sensitive to the differences in these shades of red, then presumably the corresponding perceptual states are not type-identical. And yet the subject places these cards in the 'red' pile. In actual fact, it shows a certain conceptual sophistication if a subject is able to think 'This is a red card' while also being aware that it is a different shade of red from any other card in their red pile. Now, admittedly, in the example that DeBellis offers, the listener is not able to do something analogous to this—the listener is not able to recognise that tones having different melodic functions are actually members of the same pitch-class—and to that extent this listener is not that conceptually sophisticated. But that does not give us a reason to believe that these notes are represented under some mode of presentation. It just means that notes of the same pitch class can be represented by different modes of presentation. That notes of the same pitch class can be represented by different modes of presentation should be unsurprising as this is just the intended use of the notion of mode of presentation.

Furthermore, why should we think that the existence of distinguishable perceptual states would threaten the Belief Thesis? On the one hand, it cannot be the case that every belief state corresponds to just one perceptual state-type, otherwise the subject who is sorting the deck of cards into red and non-red piles should make separate piles for each distinct shade of red. DeBellis' has not given any justification for the thought that beliefs cannot be realised by more than one type of perceptual state, nor do I think he would want to defend this. On the other hand, even if belief state-types can only be

realised by one perceptual state-type, DeBellis has not yet shown that distinguishable perceptual states are not belief states *tout court*. All he has shown is that distinguishable perceptual states *may not* realise some particular belief state-type. Of course there will be borderline cases where a subject will be in doubt as to whether, e.g., a particular card is more red or more yellow, and their being in doubt certainly shows that these mental states do not involve the same mode of presentation, but that does not mean that the mental states are not belief states. Think again of the musical example DeBellis offers (Figure 9.1). What the subject fails to realise is that the first note in measure (0) is a member of the same pitch-class as the last note in measure (4), so the subject fails to represent them under the mode of presentation *F*, but this does not prove that the subject does not represent the two notes under any mode of presentation at all. As my first objection showed, it seems more likely that the subject does represent the F in (0) under the mode of presentation *dominant* and represents the F in (4) under the mode of presentation *tonic*.

9.3 *Conclusion*

DeBellis argues that the contents of musical experience are strongly nonconceptual on the grounds that these are not the same kind of mental state as belief states. Belief states can be individuated by their mode of presentation, and DeBellis claims that the contents of musical experience are not represented under any mode of presentation he thinks can be demonstrated by showing that subjects are not able to type-identify instances of the same pitch class.

But I have argued that there is no reason to think that subjects should be able to do this. The example that DeBellis provides, claiming that the two F's in Figure 9.1, ought to be represented by the same mode of presentation. However, on my understanding of the relative chroma model of pitch representation, these mental states are not type-identical. Each mental state represents the same pitch class as having a different melodic function. It is still open to us to think that the representation of melodic function might be a mode of presentation, as DeBellis' argument has failed to convince otherwise.

CHAPTER TEN:

THE REPRESENTATION OF MUSICAL PITCH

In Chapter Seven I presented some empirical evidence for the perception of musical pitch. The evidence examined suggests that tonality is the defining characteristic of the perception of musical pitch and that auditory experience represents sound-events as possessing the properties of tonality by a psychological capacity that a listener possesses for the parsing of auditory stimulus. The tonal schema is a psychologically necessary condition on the perception of musical pitch. In Chapter Eight I examined DeBellis' weak argument for the claim that the contents of musical experience are nonconceptual and argued that his arguments fails because there is no sufficiently mind-independent difference between intentionally distinct representational contents that would satisfy the Mind-Independence Constraint. Rather the properties of music that are represented in auditory experience are the sort of properties that require something mental for their instantiation, namely the sort of psychological capacities described in Chapter Seven.

This has left us with two alternatives: we may either reject that the contents of musical experience are nonconceptual in the way that DeBellis has described or we may argue that the contents of musical experience require a notion of mediated contents where these are still nonconceptual but dependent upon the listener's possession of a special psychological ability for their representation. If we do accept the stronger alternative, then it becomes necessary to offer an explanation of how it is that the representation of musical pitch is conceptual. In this chapter I will take up this challenge. My argument will be that, as far as the representation of musical pitch is concerned, the contents of musical experience have both a nonconceptual and a conceptual component. I will argue that part of what is involved in the representation of musical pitch is the listener's sensitivity to the purely acoustical property of physical frequency. Additionally, it also involves the representation of sounds has having some melodic function. These are two necessary but distinct components of the representation of musical pitch. Thus the representation of musical pitch is 'mixed' content: a nonconceptual representation of physical frequency and a conceptual representation of melodic function. The discussion here will proceed under the assumption that we accept the strong argument against DeBellis' nonconceptualism;

however the view of contents that I will defend here would be compatible with the weak argument as well.

10.1 *A Proposal*: *Raffman's Theory of Nuance*

There does seem to be something intuitively compelling about the claim that musical perception is nonconceptual. Musical experience seems to be highly fine-grained. Any account of music perception must be able to explain the fine-grainedness of musical experience, yet in my examination of the empirical evidence I say nothing about this. In the present chapter I will provide a positive account of the representation of musical pitch that both accounts for the fine-grainedness of music perception and squares with my objections to DeBellis. I believe that these desiderata can be satisfied by adopting Raffman's account of *nuance*.[1]

In Chapter Seven I explained how an octave is divided into the eight notes unevenly spaced notes of a diatonic scale and that the distance in frequency between these notes can be expressed by regular mathematical ratios. Tones that stand in a 9:8 ratio are a major second; tones standing in a 4:3 ratio are a perfect fourth; tones standing in a 8:5 ratio are a minor sixth; and so on. However, in actual live musical performances, these frequencies or ratios are often not exactly right. A musician might play Concert A slightly flat, say at 435Hz; or she might play the major third (the interval between, say, A and C-sharp) slightly sharp, going from 440Hz to 565Hz. Think of the large choirs that one might hear singing in a church service—it is nearly impossible to insure that each singer of the group will produce tones of exactly the same frequency.

Tones are identified by pitch class, however tones rarely ever fall unambiguously within the bounds of a class of pitch. Pitch classes are vague concepts—the boundaries between two pitch classes are vaguely defined. For instance the note middle C roughly corresponds to the frequency 523Hz, and the B just below that roughly corresponds to 490Hz. So, is the frequency 507Hz a middle C or a B? The answer is that it can be heard as either—507Hz may be heard as a slightly flat middle C or as a slightly sharp B. In the right context, these tones are heard as nuances of their respective pitch classes. Musical experience is more fine-grained than is demonstrated by one's ability to identify tones by pitch class.

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[1] Raffman (1993).

Music-listeners are sensitive to such discrepancies. Pitch is heard across the entire auditory spectrum, analogously to the way in which colour is perceived across the colour spectrum. We see not only the primary shades like red, yellow, green and blue, but also all of the fine-grained differences in colour shade in between. Similarly with music, we hear not only A's and B-flats, but also many of the nuances of tone that fall along this boundary. Proof of perceptual sensitivity to these fine-grained uses of tone can be illustrated by a musician's use of vibrato—that shimmering effect that a musician achieves by alternately sharpening and flattening a tone in a rhythmic pulse across the fundamental pitch. Attending to a musician's use of vibrato is a clear example of a listener's perceptual sensitivity to such very fine-grained changes in auditory frequency. The listener hears the note 'quivering', but always hears it as being the same note, or as being an instance of a certain pitch class. Furthermore, musicians often use these 'nuances' intentionally to achieve a certain aesthetic effect. For instance, playing an interval slightly flat may produce a 'dull' feel, alternatively playing an interval slightly sharp may produce a 'fiery' or 'agitated' sound. Nuances are often used intentionally in musical performance to accentuate certain stylistic effects. Performers use these nuances to their advantage when offering their own interpretations of a piece of music, and are often praised or criticised on these grounds.

As Raffman explains, pitch class is not the 'shallowest' level of hearing that most people are perceptually sensitive to, as the phenomenon of nuance illustrates. As she says, 'our conscious perception of [nuance] in a musical performance indicates that the mental score is inferred from a still shallower level of representation at which these fine-grained within-category values are recovered'.[2] The ear training student's job is to learn how to make 'category judgments' of pitch class. When an ear training student writes out a score for a simple melody, their task is to identify the tones at the level of pitch class, which, to put this in Raffman's terminology, is the 'C-pitch' level of representation. C-pitch is that level of auditory perception that represents sound-events only as fine-grained as the classes of musical pitch that, say, the Western chromatic tonal system will allow. C-pitch roughly corresponds to pitch class. However, as our perceptual sensitivity to nuance shows, actual sound-events do not neatly fit into these coarse-grained distinctions. This more fine-grained level of nuance perception is what Raffman refers to as the 'N-pitch' level of representation. N-pitch representation,

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2 Raffman (1993): 67.

Raffman claims, is the shallowest level of pitch perception.[3] Raffman also uses the terms 'C-interval' and 'N-interval' to denote the difference between the coarse-grained music-theoretic conception of intervals and those fine-grained distances between two tones that are actually heard in musical performance. In what follows, I will attempt to provide a positive account of the representation of musical pitch that satisfies both our intuitions about the fine-grainedness of musical experience and the theoretical constraints placed on the contents of experience by the MIC by reviewing and expanding upon Raffman's account of nuance.

I want to suggest a mixed view of perceptual contents for the representation of musical pitch. Borrowing Raffman's use of the distinction between C-pitch and N-pitch representations, I suggest that C-pitch representation is the sort of content that is the result of classifying incoming auditory stimuli along the internalised schema where the product of this process is a judgment of pitch class, while N-pitch representation is additionally represented along the physical frequency spectrum.[4] I will argue that the incoming auditory stimulus is represented in a listener's auditory awareness as a series of N-pitch representations, which are then organised into a musical structure by employing the internal schema to construct a mental score at the C-pitch level. In making this argument, I will occasionally refer back to the hypothesis suggested by the stretched scale experiment (pp. 130-134).

As Raffman puts it, schematisation is a 'psychologically necessary condition' for the N-pitch level of auditory experience to be represented as having those musically salient relations that hold at the C-pitch level.[5] For Raffman, C-pitch representation captures

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[3] Is the use of the term 'level' here significant? Do the C-pitch and N-pitch representations indicate different 'levels' of representational content? In Raffman's usage of C-pitch and N-pitch, she seems to suggest that it does, as when she says that pitch class is not the shallowest level of representation (1993: 65-67). Raffman seems to be suggesting that N-pitch is the raw data of musical experience (which I take it would be something like what Evans calls informational content, or what Dretske would call the analogue content) while C-pitch is a level of representation that, to speak loosely, happens on top of the N-pitch level. I am uncertain as to whether I want to adopt Raffman's distinction between levels of representation. Another question that I am undecided on is whether the N-pitch and C-pitch contents are separate and distinct kinds of contents, or whether these are both of the same kind. It may be that N-pitch is something like an analogue, informational signal, which would be the level of content available to the pre-cognate workings of the auditory system, while C-pitch is a level of representation that lies somewhere below doxastic belief where contents begin to take on some belief-like structure that is imposed upon it by the mind. This is the model that I am considering, however much more thought needs to be given to these questions.

[4] This is essentially what Raffman argues in her (1993): Ch. 4. My contribution to this argument is to make explicit the mixed nature of these contents.

[5] Ibid.: 83. This interpretation does seem to concord with Raffman's explanation of nuance ineffability. There she claims that what is ineffable about musical nuance is the inability for verbalisation of the N-pitch level of representation. For more on ineffability and nuance, see her (1993), especially chapters 2 and 4.

the relations between sound-events that are of musical significance and can be expressed in music-theoretic terms as the sort of relations that hold between the notes of the Western diatonic system; N-pitch is basically the representation of the physical frequency of a sound wave. Raffman's C-pitch and N-pitch levels of representation are jointly necessary to account for the richness of our musical experience. The C-pitch level of representation alone is not enough as this fails to account for the fine-grainedness of musical experience, while the N-pitch level of representation alone would fail to account for those tonal relations that are salient to a listener's musical experience. The suggestion, then, is that the contents of musical experience must take into account both C-pitch and N-pitch representation. The view that I am proposing follows Raffman's account very closely. I am doing little more here than taking Raffman's account, expanding on parts that she does not emphasise and explaining how her account fits in with the questions raised in this dissertation.

The plausibility of this claim rests on two key points. The first is that C-pitch representation is due to a process of auditory schematisation that is a 'psychologically necessary condition' for the representation of musical pitch. The second point is the plausibility of the claim that the contents of the perception of musical pitch consists of two parts—the N-pitch representation of physical frequency, which I claim *is* nonconceptual, and the C-pitch representation of musical pitch class, which I claim requires the schematisation discussed above. Here I am arguing for a mixed view of contents whereby the simple representation of physical frequency is nonconceptual (there are no conceptual abilities that a listener must possess in order to be in a certain contentful auditory perceptual state), but that the perception of musical pitch is conceptual in that the listener must possess a psychological capacity for the schematisation of tones into pitch classes. In this way, the perception of auditory events does not represent experience as having any musical quality *until* such contents are schematised. Insofar as some representational content is nonconceptual, it must to that extent also be non-musical, or at least it cannot be represented by the listener *as* music or as having any musical significance unless it is schematised. In the spirit of Helmholtz, we could say that auditory experience that is unschematised tumbles about in the confusion of non-musical sounds. In this first part of this chapter I will offer some reasons for thinking that tonal schematisation is a psychologically necessary condition on pitch perception, and in the second part I will offer a sketch of what is meant by this mixed content proposal.

10.2 *Psychological Schemas as a Necessary Condition*

The first issue to consider is the claim that tonal schematisation really is a psychologically necessary condition for the perception of musical pitch. Why should we accept this? Apart from the empirical evidence, a reason to accept this claim emerges when we reflect on the pleasure or displeasure that a listener feels when presented with some music. The pleasure we take in listening to music is intimately tied up in the act of perceiving the music. One interesting feature of music perception is that sometimes, as in the case of a poor musical performance, a sequence of notes will sound out-of-tune.[6] Such is the case when one listens to the musical efforts of a beginner whose sense of intonation is still undeveloped—their performance might approximate the right pitch class, but they fail to get the fine details of the intervals right. Proper intonation is a very difficult and highly prized skill that one masters only after years of practise. While the beginner's performance might accidentally contain an interval that an accomplished musician would use as a nuance, the beginner is unable to achieve this very regularly—they are unable to use the 'nuanced' intervals appropriately.

What is important, however, is that the student's performance is heard *as* being out-of-tune and displeasing. Why should it sound displeasing? Why should a beginner's performance be painful to listen to? On the view of pitch perception that we are considering, a listener's sensitivity to intonation, like their sensitivity to nuance, seems to indicate that two things are happening at once. First, the listener must identify the sounds musically—that is, they must represent the sound as falling within some pitch class (C-pitch in Raffman's terms). Second, while identifying the tone as belonging to some pitch class, the listener must also hear the tone as either being a fitting or an unfitting member of that pitch class. The explanation for this that Raffman suggests is that 'an interval is out-of-tune only relative to some standard or prototype … [thus] we hear mistuned intervals as mistuned instances of the twelve C-intervals, not as in-tune instances of microtonal N-intervals'.[7] In order for a listener to hear an interval as being out-of-tune on this view, the listener must be capable of identifying correct instances of an interval. Intonation is then explained this way: a listener identifies two tones by C-pitch; the listener's possession of a tonal schema leads them to have expectations of the correct ratio between the two C-pitches; the listener then hears a tone as in-tune if the ratio between the two N-pitches squares with their expectation; alternatively the listener

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6 Ibid.: 66.
7 Ibid.: 85.

would hear the tone as out-of-tune if the ratio between the two N-pitches is radically off or if the relative tonal distances are not preserved systematically. (Remember how the stretched scale experiment showed us that a scale based on unusually large intervals will sound to be correctly formed to a listener provided that the augmentation of the tones is systematic throughout.)

If Raffman is right in suggesting that C-pitch schematisation is a necessary psychological condition on the representation of pitch, then this has the interesting result that C-pitch schematisation does make a phenomenological contribution to the way that musical experience feels to the listener, and this is shown by the case of intonation. What is significant about our sensitivity to intonation is that this case exhibits a clear phenomenological salience. Poor intonation is displeasing to listen to. One does not judge intonation academically, as if one is able to bracket off the feeling of displeasure from the perceptual experience in judgment. On this account, the phenomenological aspect of musical experience is the result of a clash between N-pitch and C-pitch representation, to speak somewhat metaphorically.

Here I have offered some observations on the perception of intonation in addition to those made by Raffman that lend strength to the claim that schematisation is a psychologically necessary condition. The phenomenology of tonality is the result of the listener's perceiving the physical frequencies of sounds given at the level of N-pitch representation as standing in certain relations to other sounds at a level of C-pitch representation. It is Raffman's point that N-pitch representation is necessary to explain the fine-grainedness of auditory experience while C-pitch representation is necessary to explain the phenomenological salience of tonality. We are not able to identify tones by N-pitch as this is simply too fine. Our lack of an ability to identify tones at the N-pitch level means that we cannot identify (or verbalise) these fine-grained nuances, though we are sensitive to them in perceptual experience. Raffman makes a very nice point in support of this when she claims that, were our recognitional capacities to extend to the N-pitch level of representation, then we would not be able to hear nuance, rather we would hear each distinct tone as each belonging to indefinitely many pitch classes. If that were the case, then we would no longer be able to recognise the tonal relations that hold at the C-pitch level such as melodies as 'the melody … would vanish in a sea of fine details'.[8]

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[8] Ibid.: 85-86.

10.3 *The Mixed Content View of Musical Pitch*

I would now like to turn to my second concern, which is to show how the contents of the perception of musical pitch may be mixed. In Chapter Five I defined the notion of some content's being attributionally nonconceptual as a subject's being in a content-bearing representational state even though the subject lacks the conceptual abilities that would normally be required for that subject to be in a belief state with the same content. By 'mixed contents' I am suggesting that the contents representing musical pitch involves two distinct representational components, one of which is nonconceptual while the other is not. Contents may be mixed when it is required that a subject possess a certain conceptual ability for the representation of some component of that mental content. It is not necessary that the subject must possess a conceptual ability for each component of that representational state. And this is just what I am claiming about the representational contents of musical pitch, that it is partly nonconceptual with respect to what is represented at the N-pitch level, but is conceptual with respect to what is represented at the C-pitch level. In what follows, I will attempt to distinguish these two components of the representational contents of musical pitch and explain how they fit together.

First, the representation of the physical properties of sound—frequency, intensity and duration—are nonconceptual contents, which means that a listener need not possess any special conceptual ability for the representation of these acoustical properties. In more detail, my suggestion is that auditory stimuli is presented to the listener merely as a series of sound-events that can be tracked and represented by the listener in terms of their perceived frequency, intensity and duration. The content of auditory experience at this level could be thought of as corresponding to the representational graph of an auditory spectrograph. At this most primitive nonconceptual level of auditory perception, what is represented in experience is an undifferentiated complex sound structure having no obvious musical significance. This level of perceptual experience is subpersonal and preconceptual. This is the N-pitch level of representation. Auditory experience is represented at this level as being a certain way describable in terms of the representation of certain acoustical properties, and as such these contents *would* satisfy the MIC as the properties of frequency, intensity and duration are all properly mind-independent properties. The content of N-pitch representation is common to both concept-using and non-concept-using creatures.

When sound is interpreted as music, however, another representational component is

added to the raw auditory signal. The hypothesis from empirical psychology is that the N-pitch level of auditory information is fed into a psychological ordering mechanism—the tonal schema—that quantifies the complex sound structure into discrete frequency classes. At this point the individual sound-events making up the N-pitch information are ordered according to closeness of fit within the expected schematic tonal framework. The internalised schema of a Western subject consists of twelve discrete pitch classes corresponding to the twelve notes of the chromatic scale (see Figure 7.3, p. 127) arranged within a hierarchy of stability relations, thus the task of the internal schema is to quantify the N-pitch input into the best fit of C-pitch note classes. This quantification into C-pitch assigns the sound a position within the tonal hierarchy, at which point musical relations that hold at the level of pitch class (consonance and dissonance) then become available to the listener through the listener's having built up a set of expectations for each melodic function. Representation at the level of C-pitch is the business of those theories of musical representation like Schenkerian analysis or GTTM. I leave it open which of these models best describes the way in which music is represented at the C-pitch level. For my purposes it is enough that, whatever the model, music must be represented in these C-pitch terms. However, the representational systems postulated by GTTM or Schenkerian analysis only takes into account the representational content of the musical relations at the C-pitch level of description. All that is represented by the C-pitch mental map are tonal *relations*. While this sort of representation is a necessary condition for tonality to play a role in the representation contents of experience, a full account of the representational content of a listener's experience would require a way of capturing the specific notes that a listener hears.

The proposal that I am offering for the mixed contents of the representation of musical pitch could be described like this: contents that represent musical pitch consists of an ordered dyad of N-pitch and C-pitch constituents. The dyad representing a musical pitch would be order like this: <N-pitch, C-pitch>. For the listener who hears 'Mary had a Little Lamb' in the key of C-major, the first note, an E, would be represented as '<659Hz, *3*>', where '659Hz' denotes the actual N-pitch heard representing the physical frequency and '*3*' denotes the tonal function that the C-pitch schematisation has tacked on.[9] If this were the case, then the content of a listener's

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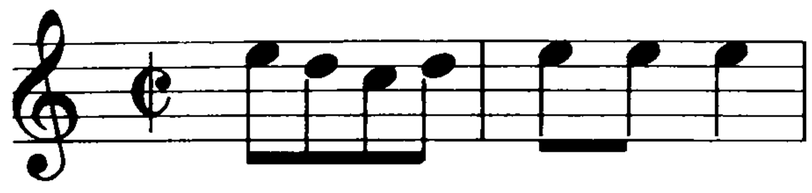
[9] This is somewhat incomplete, as this description only covers frequency and tonal function. Other features that might enter into the content of the auditory experience would be intensity, duration, tempo, rhythmic grouping, and perhaps the sound's spatial location relative to the listener. A complete

pitch representation of the opening phrase of 'Mary had a Little Lamb' in the key of C-major:



would look like this:

<659Hz, *3*> - <587Hz, *2*> - <523Hz, *1*> - <587Hz, *2*> - <659Hz, *3*> - <659Hz, *3*> - <659Hz, *3*>

Figure 10.1

This proposal would allow for us to distinguish between a listener who hears 'Mary had a Little Lamb' in C-major from a listener who hears the same melody in, say, D-major. A listener who heard 'Mary had a Little Lamb' in D-major would represent the tones as having the same chroma values as in Figure 10.1 above. The difference, however, would be captured by the constituent of the N-pitch place. So, 'Mary had a Little Lamb' in D-major would be represented like this:

<733Hz, *3*> - <659Hz, *2*> - <587Hz, *1*> - <659Hz, *2*> - <733Hz, *3*> - <733Hz, *3*> - <733Hz, *3*>

Figure 10.2

This would also offer a way of incorporating Raffman's point about the perception of nuance. A normal E (659Hz) might be represented as '<659Hz, *3*'> while an E that is played slightly flat would be represented as '<650Hz, *3*'>. In both cases, the listener represents the tone as *3*, which accounts for the listener's hearing the two tones as having the same melodic function, while the N-pitch component of the dyad accounts for the nuance. Additionally, the mixed view of content could also be seen as taking on the two conditions for the perception of musical pitch hypothesised by psychologists, N-pitch and C-pitch taking the place of pitch height and octave equivalence respectively.

There are two final points I should make clear. On this mixed view of contents, N-pitch content is present in the perceptual experience 'all the way up', to borrow a phrase

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description of the representational content of a musical experience would require a very complex description. All that concerns me here is that some of the constituent elements of this content would satisfy the MIC (frequency, intensity, duration) while others are the result of some psychological ordering mechanism (tonal function, rhythmic grouping, and spatial location).

from Stalnaker.[10] This is a point that Raffman also makes toward the end of her (1993): §4.2. The representational contents of musical pitch are constituted by both N-pitch and C-pitch representations. The nonconceptual N-pitch constituent is present very early on in the experience from the simple causal-mechanical process that goes on in the inner ear that begins with encoding the acoustical stimuli into an informational signal and remains present after the schematisation process identifies the tone as belong to some pitch class.

Finally, both the N-pitch and C-pitch constituents of the ordered dyad make their own contributions to the phenomenology of the experience. We represent a sound as being some musical tone by hearing it as standing in certain (tonal) relations to other sounds. This is the representation of C-pitch where a sound is heard as belonging to some pitch class or other. The phenomenological contribution that pitch class makes was discussed in Chapter Seven—hearing a tone as being consonant or dissonant is a function of hearing it as belonging to some pitch class. And it is through N-pitch representation we identify the pitch height (differences in physical frequency) and perceive intonation and nuance. Imagine what musical experience would be like if either of these two components were missing. C-pitch representation alone would lack any phenomenology as it would lack pitch height, intonation and nuance; while N-pitch representation alone would lack tonality. This is just what non-musical sound is—N-pitch representation that has not been schematised. As Kant said, 'Thoughts without content are empty, intuitions without concepts are blind'.[11] In this instance, it would be C-pitch representation alone that would be empty and N-pitch representation alone that would be blind. While the phenomenology of intonation and nuance are due to a clash between what a listener expects to hear and what a listener actually hears, the phenomenological contribution of N-pitch is no less important than that of C-pitch. Indeed, it is the clash between these two that lends musical experience with the rich, 'glittering' phenomenology that it has.

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[10] Stalnaker (2003): 106. Stalnaker makes this point in reference to a claim by McDowell. McDowell worries that the contents of mental states involving perceptual experience cannot be different kinds of contents, as if they were then the epistemic link between perception and belief would have to be a link between contents of different kinds, which he finds implausible. Rather, McDowell argues that contents are of the same kind in both perception and belief, and if they are of the same kind then they must be conceptual 'all the way down'. Stalnaker by contrast argues that belief states are about perceptual states, and belief states retain the content of perceptual states, so the epistemic link between conceptual and nonconceptual contents would remain if we thought of contents as nonconceptual 'all the way up'.

[11] Kant (1781/1787): A51/B75.

10.4 *Conclusion*

To conclude, any account of auditory perception must take into account both the musical relations that hold at the C-pitch level as well as those qualities of musical nuance that must come out of the N-pitch level in order to accurately describe the representation of musical pitch. I have tried to accommodate this by offering a mixed content account claiming that the representation of musical pitch must be a structured content that represents both the mind-independent property of physical frequency (N-pitch) as well as the mind-dependent schematised property of tonality (C-pitch). What is *musical* about auditory experience would fail to satisfy the MIC, however the N-pitch component of the representational content would clearly count as nonconceptual.

The view that I have expressed here assumes the strong argument against nonconceptualism—that the required psychological abilities for the representation of musical pitch are conceptual abilities. If this strong argument does not work, then we must resort to the weak argument, which posits the need for a mind-dependent mediated content. The mixed view of contents expressed here does not conflict with the weak argument. Indeed, this mixed view of contents may provide a way of understanding the nature of mediated contents. On the theory of mediated contents, the representational contents of musical pitch would be a nonconceptual mental state that has an added psychological component that is responsible for the representation of tonality.

CHAPTER ELEVEN:
THE REPRESENTATION OF SPATIAL LOCATION IN AUDITORY EXPERIENCE

In the previous chapters I argued that what is musical about the representation of musical pitch would fail to satisfy the Mind-Independence Constraint. This failure to satisfy the MIC then calls into question whether the contents of these representational states are conceptual contents or mediated contents. In this chapter I would like to examine another auditory phenomenon that offers an equally enigmatic problem, namely the representation of spatial location in auditory experience. Often, auditory experience seems to exhibit spatial qualities. Sounds often seem to be on the left, or on the right, or to come from directly behind, or being near or far. It seems to be part of our auditory experience that we hear directionality and distance. The spatial quality of auditory experience is such a commonplace perceptual phenomenon that its existence as a phenomenon hardly needs to be commented upon. Yet it is deeply perplexing how auditory experience comes to acquire this spatial quality. For one thing, spatial location is not a feature of auditory experience that can be accounted for by referring to any physical property of the sound wave. Therefore, while auditory experience can have a spatial quality, *sounds* themselves do not. So how does auditory experience acquire this spatial quality?

In what follows, I will offer an account of how auditory experience can have a spatial content. I will position this concern within the intentionalist theory of perception that we have been working with. Furthermore, I will position my view within a strong interpretation of intentionalism. To remind the reader, in its strong form, intentionalists hold that any difference between two perceptual experiences is a difference that can be accounted for by a full description of the representational contents of the experiences. On this view, if two perceptual experiences have the same representational contents, then they must be phenomenally indistinguishable as well.

I will begin by examining more closely whether spatiality could be reducible to some acoustical property. My argument will be that it cannot, rather spatiality in auditory experience is an intentional property of experience. Like tonality, auditory experience represents spatiality because the mind makes a cognitive addition to the content of the

experience. While the discussion of this chapter is a departure from the main concern of this dissertation (examining how the contents of perceptual experience may act as the basis for understanding music) the problem of the representation of spatiality does aid in our understanding of the contents of auditory experience and the theoretical force of the MIC. The purpose of this chapter is to demonstrate yet another way in which cognition plays a role in fixing the contents of auditory experience. My reason for demonstrating this here is because I do not want musical pitch to look like a strange and isolated auditory phenomenon. By demonstrating how the representation of musical pitch is akin to the auditory representation of spatiality, I hope to expand upon the range of intentional properties in auditory experience.

11.1 *Contrasting the Spatiality of Audition with Vision*

When one's auditory system is working properly, the content of auditory experience seems to include hearing the rain on the window, the students talking in the hall, or the birds singing in the back garden. More interesting cases would be those auditory experiences that represent certain states of affairs being the case. These are cases that could be described as 'hearing-that', as when one hears that the chain on one's bicycle needs oil, or hears that the water in the kettle has boiled. One case of hearing-that that seems particularly puzzling is the spatial location of sounds—hearing that *x* is on the left. Certain auditory experiences seem to include representations of spatial locations, as when I hear the door open on my right, or the cat meowing right behind me. That spatial location does play some role in auditory experience should be intuitively clear from personal experience.

Of course, not all auditory experiences have a spatial content. A clap of thunder might sound as if it surrounds the listener, and hearing a ringing in my ear does not sound to be located at all (one does not hear a ringing in the ear as being located at their ear). And not all cases where auditory experience does have a spatial content can be taken as veridical. Listening to music through headphones may give the illusion of space. An interesting case of a spatial illusion is Diana Deutsch's 'scale illusion' experiment.[1] In Deutsch's experiment, listeners wearing headphones are played two different melodies in each ear simultaneously (Figure 11.1):

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[1] As described in Sloboda (1985): 156-157.

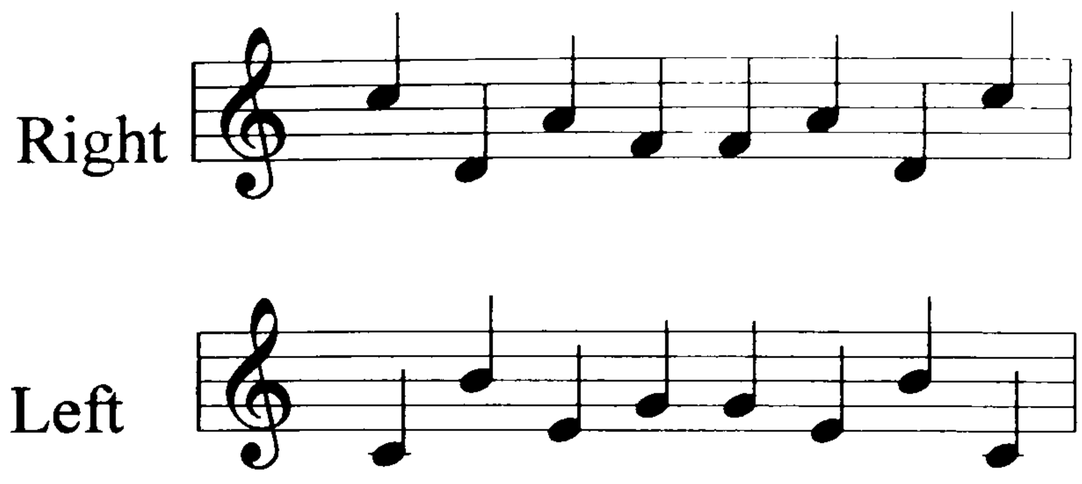

Figure 11.1

The melodies are constructed to be harmonically similar: both are in C-major, but make unusual leaps between the notes. The right ear channel opens with the highest note of the melody, a C^5, then jumps down to a D^4, then up to an A^4, then down to an F^4, then the melody repeats this sequence in reverse order. The left channel opens with the lowest note, a C^4, then jumps to a B^4, then E^4, then G^4, which then also repeats in reverse order. The thing to notice about these melodies is that they make unexpected leaps in odd intervals—the smallest interval used is a minor third (between the E^4 and G^4) and the widest used is a major seventh (between the C^4 and B^4). However, very interestingly, when listeners are asked to report on what they heard when played the two melodies simultaneously, what listeners most commonly reported hearing is nothing like the melody in Figure 11.1. They do not report hearing two angular melodies with odd leaping intervals, but rather report to having heard two perfectly smooth scalar passages using intervals no greater than major and minor seconds (see Figure 11.2).

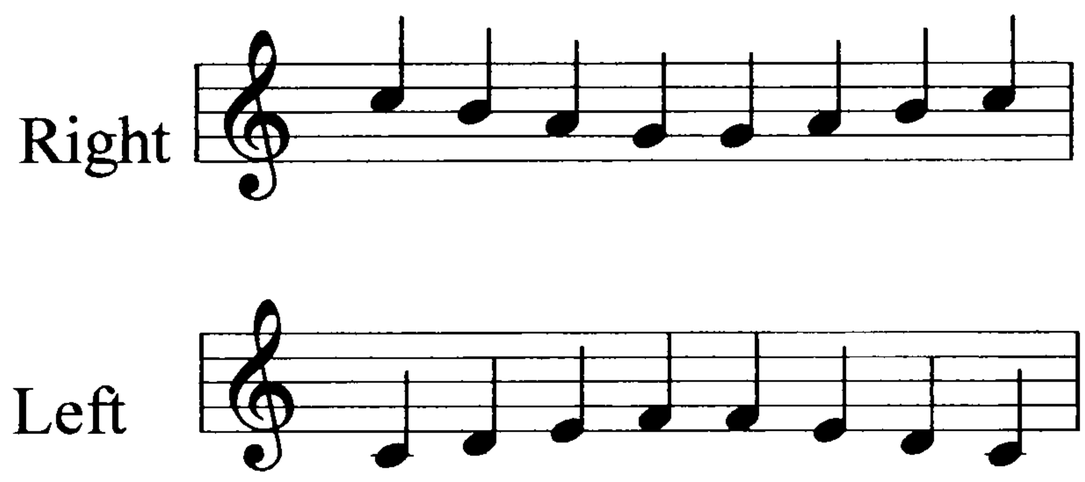

Figure 11.2

Deutsch calls this the 'scale illusion'. What is interesting is that, not only does the listener fail to hear the melodies as two angular passages, but they also misrepresent the directional location of the sound channels. Listeners reported hearing all the high notes as coming from the right channel and all the low notes coming from the left. Deutsch hypothesises that the reason for this auditory illusion is that perceptual experience

organises the passages in a way that makes musical sense. It is simply easier for a listener to think of or remember a melody that progresses in a uniform and predictable manner like that in Figure 11.2 rather than the difficult and angular melodies of Figure 11.1. Deutsch (and Sloboda) draws the conclusion that listeners possess a cognitive mechanism that arranges these melodies into the more simplified and musically common form rather than struggle with the complicated and more uncommon angular melodies. And this example is not a simple trick of cognitive scientists, using strange laboratory experiments to arrive at stranger conclusions, but actually does reflect a phenomenon that happens in real musical listening. Sloboda cites real-life examples of similar sorts of perceptual tricks used by composers such as Tchaikovsky and Rachmaninov, where both composers have written a difficult musical passage that provides the illusion of something much simpler.[2] Furthermore, it should be noted that Deutsch's experiment cannot be explained in terms of that familiar psychological phenomenon known as the proximity principle, where subjects judge a pattern of dots, say, to form a single unit because of their proximity to one another. The subject's in Deutsch's experiment do not simply judge the notes to be related in the more predictable pattern of Figure 11.2, rather they *hear* the melody as being that way. Deutsch's experiment is a real case of auditory illusion—her subjects heard the melody as being a certain way that it actually was not.

Despite these cases of illusion and misrepresentation or those cases where auditory experience has no spatial contents at all, this should not detract from the fact that under normal conditions and circumstances, the contents of auditory experience do seem to represent spatial locations. If auditory experience never represented spatial location, then it would be a complete mystery how one could, say, locate one's phone by listening to it ringing.

The problem that we find with the auditory representation of spatiality is that audition is not a three-dimensional sense modality—as Strawson has I think rightly argued, hearing is not an inherently spatial sense modality in the way that vision is.[3] Contrast hearing with vision. When we look at the world, we not only see objects arranged in space, but we also seem to see the space within which objects can be

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[2] Sloboda (1985): 157-158.

[3] Strawson (1959), Ch. 2; see also Nudds (2001). For an opposing view, from a cognitive science perspective, see Blauert (1997). There is also an interesting discussion of whether auditory experience is inherently spatial in Peacocke (1983): Ch. 2. I will not be commenting explicitly on Peacocke's arguments here.

arranged in such a way that has no analogous sense for audition. As Nudds puts the point:

> In the case of vision, we can distinguish between having an experience of there being nothing at a place where we could experience something, and not having an experience of anything in a place we could experience something; between, that is, being aware that nothing is there and being unaware of anything there.... It is this visual awareness of places where there is nothing which has no auditory equivalent. We are simply not auditorialy aware of empty places—there's no difference between not experiencing a sound at some place, and experiencing no sound there.[4]

The representation of spatial location in auditory experience is remarkably different from the representation of the spatial location in visual experience. In visual experience, I can not only see the objects in my immediate environment, but I can also see the empty space within which such objects could be arranged, or within which my own actions could take place. Auditory experience, on the other hand, does not present us with this representation of empty space. I can see an empty space in the room, but I cannot hear an empty space.

Alternatively, contrast this with smell: our olfactory sense does not represent the smell of objects within a three-dimensional spatial array. I cannot close my eyes and build a mental map of the spatial layout of my surroundings on the basis of smell alone. The ability to locate objects by smell is little more than playing a game of 'Hot and Cold'—to locate an object by smell, I must turn my head and decide whether the smell seems stronger or weaker.[5] We locate objects by smell on the basis of their scent being more intense at one place than another. Constantly making this judgment, I must 'follow my nose'. Smell is an inherently non-spatial sense modality. The question is whether the proper model of spatiality in auditory experience should be described as being more like smell (inherently non-spatial) or more like vision or touch (inherently spatial).[6] If we are to side with Strawson and Nudds, then audition must be more like smell than it is like either vision or touch—the perception of empty space is not something inherent to auditory experience. However, audition differs from olfaction in one very important sense: sounds can *seem* to us to be located in space, which is just to say that auditory experience seems to represent spatial qualities, whereas olfaction does

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[4] Nudds (2001), 213. Strawson's claim is central to Nudds' essay, and the present chapter was much inspired by Nudds. While I will not be following Nudds' view, I will also not have the space here to examine his account in detail. I would refer the reader to the original essay.

[5] Cf. Pasnau (1999, §8-9) also questions whether sounds are closer to smells or colours, and also refers to the 'hot/cold game', though he argues that sounds are closer to colours on account of the fact that both of these can seem to be located.

not. There is no analogous sense in which one smell might seem further away than another smell, or as being on the left or the right as there is in the case of sound.

Incidentally, if one were to seek further validation of the thought that auditory experience is inherently non-spatial, then such validation might be found in Smith's distinction between 'phenomena' or 'mere sensation' on the one hand and 'physical bodies' on the other. His distinction rests on the idea that in perceiving, one has the experience of perspective with regard to physical bodies whereas 'there are no perspectives to be had on our sensations'.[7] When one sees a vase, one can turn the vase or even walk around the vase and as one does so more perspectives are revealed to the onlooker. There is no such analogous sense in which one can experience a change of perspective with regard to a sound. A sound is, as it were, fully present in auditory experience—there are no 'sides' that a shift in perspective would reveal. On his view sounds would fall into the category of 'phenomena'. By referring to Smith's distinction, I am not hereby endorsing it or his use of it, though what I am endorsing is the intuition that grounds this distinction—that sounds do not have sides. One might object to this by agreeing that *sounds* do not have sides but that surely *sound producing objects* do, and sometimes hearing an object from a different side does have its own characteristic sound. Think about the sound of listening to a radio from the backside. However, this objection misses the point. When one listens to a loudspeaker from the backside, does one really gain a different perspective on the same sound? Surely, this is what would be required if we were to think that auditory experience was perspectival—that the sound we hear from the back of the loudspeaker is the same sound as the one we hear from the front, the only difference being that we have a different perspective on that sound. But why should we think this? It would be more natural to think that what we hear from the back of the loudspeaker is a different sound, one that is caused by the back of the loudspeaker.

11.2 *The Medium of Sound*

An intuitive thought about the nature of the properties that are represented in perceptual experience would be to think that the content of one's perceptual experience is causally related to some property instantiated by the object of perceptual experience. However

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6 I owe this observation to Keith Hossack.

7 Smith (2002): 135.

the question we must ask is, what is the object of auditory experience? As in the case of visual experience, this point is much debated.[8] Is it sound waves that we hear or is it the objects themselves that are the cause of the sound waves? Does one hear a ringing sound or does one hear the phone ringing? If it is the former, then for auditory experience to represent spatiality, sounds themselves must have spatial properties, however if it is the latter, then it is objects that cause sounds that possess spatial properties. I will briefly review these two positions.

On the latter view, sounds are identified by their originating object, and sound-events have certain properties because their originating objects have these properties, so we can call this the *originating-object view*.[9] This view often seems to be the most intuitively appealing—I do not hear a sound wave ringing, rather I hear my phone ringing. Opposed to this, some argue that sounds themselves have properties that cannot be directly traced back to their originating objects, and that they will have different properties depending on where the listener hears the sound—on this view, sounds are located in space and have properties that are independent of their originating objects.[10] It can be easily demonstrated that a sound-event heard at position *x* has different properties than a sound-event heard at position *y* even though both sounds originate from the same object—perhaps the sound of the phone ringing is louder at *x* than at *y*, or perhaps at *x* the listener also hears an echo while at *y* they do not. As the two sound-events have different properties, then they are, on this view, different sounds. For reasons related to these, Nudds describes sounds as particulars objects that are independent of the objects that produce them; they are distinct objects rather than properties of an object.[11] On this view, sounds are often identified by the medium in which they are heard—indeed, some argue that sounds are properties of the medium[12]—so I will call this the *medium view*.[13] Sounds seem to be all around us, embodied in the medium of their transmission. The medium view gains some plausibility from the thought that there is no sound in a vacuum, as there is no medium. Additionally, Strawson's claim that sound is an inherently non-spatial sense modality fits more naturally with the medium view of sound—Strawson's claim is a claim about *sound*, it

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8 See, for instance, O'Callaghan (forthcoming 2006); O'Shaughnessy (1957); and Pasnau (1999).
9 Pasnau (1999) and (2000) argues for a version of the originating-object view.
10 See Blauert (1997) for some discussion of this from a psychological perspective.
11 Nudds (2001): 222.
12 O' Callaghan (unpublished, a).

is not a claim about objects that cause sounds.

Now, in the case of vision, our intuition is strongly in favour of an object-view—when a subject is looking at a red ball on a table, we would not say that what the subject sees is a light wave, rather the subject just sees the red ball. Our natural inclination may be to follow this in the case of sound as well—I hear my phone ringing—and thus support the originating-object view. This intuition is reinforced by the direct relation that the originating-object view implies between a listener and the object that is heard, whereas the medium view implies an inferential account of perceiving objects, which would require us thinking something like the ringing noise prompts the listener to infer that there is a phone nearby.[14] This is an awkward and unintuitive way of speaking. However there is good reason to support the medium view. For instance, sound-events have echoes. Think of the case of the whispering gallery:[15] if a listener changes position in a whispering gallery then the effect is lost as it can only be heard at certain points in the room.

As in the case of vision, when a subject stands in a particular point in space and looks, they see a visual scene. The visual scene that that subject enjoys would be quite different if they had been standing at some other point in space—they would have a visual experience of a different scene. Theorists who defend the medium view are motivated by the same thought, that there is a sense in which the sound a listener hears at a particular point in space is like an 'auditory scene'. In order to preserve the direct link between these effects and the originating object in the whispering gallery we would need to tell a very complicated story about the causal interactions between the position of the originating object, the position of the listener and the acoustical properties of the room. This isn't impossible, but the point is that the properties that one hears the sound-event as having are not properties that originate with the object. In addition to hearing the sound of the object, the listener also in a sense 'hears' the effects of the

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[13] It seems that the medium view may have been the dominate view throughout the Middle Ages and was also held by the likes of Descartes and Berkeley. See Pasnau (2000) for an historical discussion of the nature of sounds.

[14] Berkeley has Philonous expressing such an inferential view in the *First Dialogue*: 'For instance, when I hear a coach drive along the streets, immediately I perceive only the sound; but from the experience I have had that such a sound is connected with a coach, I am said to hear the coach. It is nevertheless evident, that in truth and strictness, nothing can be *heard* but *sound*: and the coach is not then properly perceived by sense, but suggested from experience' (1713 [1949]): 204.

[15] A whispering gallery is a room with elliptical ceilings or walls, so that a sound made at one focus of the ellipse will be reflected to other foci around the room allowing faint sounds to be heard clearly around the entire circumference. In a whispering gallery, a listener might hear a person who is standing ten feet in front of her as if she is standing directly behind her.

acoustical properties of the room. To preserve the direct causal link that the originating-object view requires, we find that we have to tell a story that takes into account properties that are not strictly speaking attributable to the originating object.

Another reason to prefer the medium view is that this view is more accommodating to our intuitions about recorded sounds. Imagine a sound engineer recording a song. Suppose the sound engineer is recording a violinist who is playing in the studio and that the engineer is using some electronic processing equipment on the sound, say a compressor and a digital reverb unit. The sound of the violin is converted into an electrical signal by the microphones, which then travels through the mixing board, through a compressor and a digital reverb unit before being redirected to the studio speakers. In what sense are we directly hearing the violin? Are we not also hearing the effects of the microphone, the compressor and the digital reverb? Or are we only *directly* hearing the sound of the speakers? Surely there are properties that the sound-event has—the effects of the compressor and the digital reverb—that cannot be attributed to the violin for its origin. Furthermore, what are we to say after the sound is recorded? When the violinist stops playing and joins the engineer in the studio to hear the result of the recording, in what sense are they hearing the violin?[16] And if we are not hearing the violin directly at this point, then why should we think that we were hearing the violin directly in any other case?[17] Again, while it may be possible to tell a long, complicated story about the causal chain that links the listener directly to the violin that accounts for the recording, it would be highly unintuitive. Our intuitions seem to go in the opposite direction in this case.

When we consider these two views concerning the problem of spatiality in auditory experience, then on the medium view, sounds themselves have spatial locations. We hear sounds as being located in particular points of space. When I hear the telephone ringing and I am standing at position *x*, what I hear is the sound of the telephone ringing

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[16] This example is in a sense analogous to the time-gap problem: an astronomer who sees a star exploding in the past has a visual experience of a star exploding now. Armstrong admits that seeing a star explode in the past involves a perceptual illusion of seeing something happening in the present, though he does suggest that in the case of sound there is less inclination to regard this as illusion. He suggests that the problem of time-gap may dissolve in the case of sound, presumably because it is more intuitive to think of hearing a sound wave than it is to think of seeing a light wave. See Armstrong (1961): 144-148.

[17] This move in arguing for the medium view is very close to the sort of move that a sense-datum theorists uses in defending their indirect realist account of perception. I should just like to point out the difference between the sense-datum theorist's use of this move and the defender of the medium view's use of it. The defender of the medium view is not arguing for anything as metaphysically dubious as a sense-datum. All the medium view theorists is defending is the claim that sounds are entities that are

at position *x*. If I were to move to position *y*, then I would no longer hear the *same sound*—that is, I would no longer hear the sound of the telephone ringing at position *x*—rather I would then hear a new sound, which is the sound of the telephone ringing at position *y*.[18] On the originating-object view, sounds themselves have no spatial quality, rather objects that cause sounds do. An object sounds to be located at a particular place and auditory experience represents the listener's orientation to that object. If this is correct, then the difference between hearing a sound as being on the right and hearing a sound as being on the left would be like seeing a different side of the same object. Someone defending the originating-object view must claim that by changing one's position in a room relative to a sound-producing object, the listener is able to hear the sound of an object from different perspectives. Spatiality in auditory experience would seem to require a perspectival analysis on this view. However the difficulty with this view is that it does not square with Strawson's claim that sound is an inherently non-spatial sense modality. It might make sense to describe vision in perspectival terms because when the subject walks around to the other side of the table they can *see* the perspective—that is, they can see the empty space around the table and the spatial relations between all of the visible objects in their view. But, repeating Nudds' point, there is no sense in which a listener hears empty spaces. The challenge for this view would be to explain how the change in perspective comes to be registered in auditory experience, how it is that listeners are perceptually sensitive to changes in location. If the originating-object theorist tried to meet this challenge by appealing to the way that sounds are perceived from different orientations, then it is difficult to see how their view is significantly different from the medium view. If it is objects that we hear directly and not sound waves, then the originating-object theorist cannot now begin appealing to sound waves.

This is what we will consider: subject S hears a sound-event *e* at position *x* and subject T hears a sound-event at position *y*, and S and T hear these at the same time. S hears *e* as being on her left and T hears *e* as being on her right. Let us assume that in all other respects these sounds are tokens of the same type, that they are produced by the same cause, and that the two token sound-experiences are identical as to their

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distinct from their causal origins—that sounds can have properties that are not attributable to their causal origins and therefore we do not hear objects, we hear sounds.

[18] Interestingly, Nudds (2001) argues that sounds are distinct from their causal origins on account of our being able to reencounter the same sound at some other position or time. He refers to the case of Newton calculating the speed of sound by listening to the echo of a bouncing ball.

frequency, intensity and duration from the positions that the S and T hear *e*. While these acoustical properties hold in common between the representational states of S and T there is also clearly a difference as to the contents of their experience due to the difference in the spatiality. S hears *e* at position *x* as being on her left, so let us say that she is in a mental state with content (*e*)*L*, while T hears *e* at position *y* as being on her right, so we will label the content of her mental state (*e*)*R*. According to the MIC, if the representational contents of spatiality in auditory experience are nonconceptual then there must be some mind-independent state of affairs that accounts for the difference between hearing a sound as being on the left and hearing the same sound as being on the right. Does the difference between the mental states (*e*)*L* and (*e*)*R* satisfy the MIC?

In what follows, I will offer an explanation of how we should think about the auditory representation of spatiality. My task here is not to decide between the originating-object view and the medium view—there is much that would need to be taken into account to decide between those—though some of what I will say will fit more naturally into the medium view. Between the originating-object view and the medium view, neither of these views is better suited to handle the auditory representation of spatiality. The medium view allows us to talk more directly about sounds themselves, as on the originating-object view sounds are just secondary qualities of an object. However, either view must offer an explanation of the representation of spatiality that takes the acoustical phenomenon into account—as commented above, even on the originating-object view we find the need to talk about a listener's perceptual sensitivity to sound waves in a particular spatial orientation. Therefore, I will proceed by examining the physical characteristics of sound waves and our perceptual sensitivity to properties of sound waves.

11.3 *Acoustics*

I take it as given that sounds carry information in the same sense that the rings of a tree carry information, i.e., about the tree's age. The question is, what sorts of information do sounds carry? Some candidates would be identifying information about the originating object and the spatial location of the originating object.[19] By understanding

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[19] One questionable candidate might be that sounds carry information about the medium through which the sound is heard. The phenomenon of sound has physical behavioural qualities in air different from those in liquids, or solid bodies, or other gases (e.g. helium). While sounds might carry information about

the physical qualities of sounds we might come to see what sort of information sounds can carry. In this section, I will briefly examine some simple principles of acoustics that will aid us in this endeavour. It may be difficult to distinguish my philosophical claims from the more general claims about acoustics, so I will try to flag these as I go.

My first philosophical claim is that what is directly heard in auditory experience is an event constituted by a *sound structure* where this is a complex pattern of air pressure fluctuations by compression and rarefaction at a particular rate of frequency, intensity and duration.[20] Now for the acoustics: One such compression-expansion rate, measured in cycles-per-second or Hertz (Hz), is called a *frequency*. Any given sound structure event involves a great many frequencies, typically having a small number of dominant frequencies, called the *fundamentals*, as well as a much greater number of secondary frequencies resonating at a significantly lower rate of intensity, called the *overtone series*. Fundamentals sound to be more dominant than the overtones because of their much greater intensity; thus simple sounds, like striking one note on a piano, can be identified with the sound structure's fundamental frequency, which is what in musical terms is commonly called the *pitch*. If the piano key corresponding to the note *A-below-middle-C* is struck, the fundamental frequency is given by the rate at which the length of the string resonates when stretched to a certain degree of tension. The corresponding string for *A-below-middle-C*, when tuned properly, standardly resonates at a rate of 440 cycles-per-second, or 440 Hz. More complex sounds—multiple notes struck on the piano, a dog barking, a human voice, a glass breaking—are constituted by multiple fundamentals and their overtones.

The overtones, being less distinct due to their greater number and lower intensity, are heard as contributing to the timbre or 'colour' of the sound structure—a particular auditory event gets its timbre from its possession of a unique overtone series. The relation between fundamental frequency and overtones involves a great many variables—in striking one note on a piano, such elements as the length of the string, its tautness, and the material that the string, hammer and piano body are made of will all play some role in determining the character of the overtone series—but the overtones

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the physical qualities of the originating object or the surrounding environment, and always does so *through* a medium, it is questionable whether sounds carry about the medium itself. Also, against the thought that sounds can carry identifying information about the objects that are their cause see Smith (2002): 49 and 144.

[20] By 'sound structure', I am roughly following Levinson's use of this term. See his (1990).

can generally be characterised as being derived multiples of the fundamental.[21]

My second philosophical claim: Any particular auditory experience is not, however, exhausted by a description of the fundamental frequency and the overtones; or rather a better way of putting it is that an auditory experience cannot be fully described in terms of what could be called the *direct* or *primary sound structure*. The fundamental frequency and the overtones are the sound-events constituting the primary sound structure. However, additionally when a sound-event occurs, one thing that also figures in the auditory experience are the reflections of the primary sound in the form of echoes or reverberations, which can be called the *indirect* or *secondary sound structures*.[22] While these sound-events are derivatives of the primary sound-event, they are temporally distinct and physically distinct as well. That they are temporally distinct from the primary sound should be obvious—we hear the primary sound at a different time from the secondary sounds. By their being physically distinct I mean that the structure of an echo's frequency wavelength pattern is usually not identical to the structure of the frequency pattern that the primary sound that it is a derivative of. For instance, certain materials have different frequency reflectance properties—while hard surfaces such as marble reflect a wide range of frequencies, wood surfaces such as pine are very good at absorbing low-pitch frequencies and reflecting high-pitch ones, and synthetic materials such as polystyrene are good high-frequency absorbents. If we were to identify a sound structure as a particular pattern of frequency-intensity waves, we would quite often find that primary sound structures differs in frequency and intensity from nearly all of its echoes.[23] In addition to this, sound also decays as it travels so that, by the time an echo returns even from a highly reflectant surface, some frequency loss will have occurred, usually in the higher regions of the overtone series where the wavelengths are quite small. These kinds of phenomena are so ubiquitous and subtle as to go barely noticed by most people, though they do make a large contribution to the content of the auditory experience. Echoes, then can be both temporally and physically

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[21] For a more complete discussion of the acoustics of overtones, see Moore (1982), Ch. 4; Luce (1993), Chs. 2 and 3.

[22] It should be kept in mind that 'primary' and 'secondary' here are my own terms. In most textbooks on acoustics, the favoured terms are *direct sounds* for what I am calling the primary sound structure, and *indirect sounds* for echoes. I use 'primary' and 'secondary' as a way of emphasising the compositional parallel between these and the complex sound structure. Also, for an opposing view, see O'Callaghan (unpublished, b) who argues that echoes are not distinct from the primary sound.

[23] Some electronic devices are of course able to produce echoes physically identical in frequency and intensity, but this examples strike me as simply a multiply repeated primary sound structure that has electronically produced multiple instances rather than what would count as a naturally occurring echo. For a sound to be a natural echo, it must be produced by a sound wave's being reflected off of a surface.

distinct sound structures.

If we want to give as complete an account of a listener's auditory experience as possible, then we must account for reverberations as well as the primary sound structure. If requiring an account of reverberation seems odd or unnecessary for a description of a listener's auditory experience, then think again of the experience of listening to a sound in a whispering gallery. In such cases what one is hearing is a very peculiar acoustical effect—the combination of the shape of the room and the reflectance properties of the room's building materials. While the 'whispering gallery' effect is rather unique, a more common acoustical effect of this sort would be the 'standing wave' effect. As two sound waves that have some frequencies in common reverberate within a solid structure, travelling across each other, certain frequencies can be amplified (as for example when two waves cross just at the point where both waves are compressed) or certain frequencies can be cancelled out (as when two waves cross just at the point where one wave is compressing and the other expanding). When two wave forms are 'in phase' they essentially double up in their intensity, as opposed to when two wave forms are 'out of phase' and equivocate each other. Such effects are so commonplace that recording studios spend great amounts of money on the structural design and sound proofing of their recording suites to minimise the effects of standing waves.

Finally, my last philosophical claim in this section is that what a listener hears in auditory experience must be described both in terms of primary sound structures and their secondary sound structures. The combination of these two constitutive elements is what I call a *compound* or *complex sound structure*. Auditory experience comes in the form of complex sound structures, which could be type identified in terms of their frequencies (fundamentals and overtones, both primary and reverberated), overall intensity and duration. The sort of properties that auditory experience represents are those that individuate complex sound structures. These are highly complex patterns of frequency-intensity waves. Auditory experience is like a highly sensitive spectrograph and its content can be described in terms of its representing the frequency, intensity and duration of sound waves.

11.4 *The Encoding-Decoding Distinction*

With these thoughts in mind, we can now examine what sort of information can be

carried by sound. The two candidates I had suggested were information about the originating object and information about the spatial location of the object. As it is the second candidate that is the focus of this chapter, I will go quickly over the first one. Regarding the originating object, one can identify at least the type of object from which a sound originates by attending to the timbre of the sound. The difference between the sound of a viola and the sound of an oboe is a difference in timbre. As I mentioned above, the timbre of a sound is given by the quality of the overtone series, and quite a large number of factors can play a role in fixing this quality: metals tend to produce higher frequencies better than wood; the resonation pattern of, say, stringed instruments will contribute differently to the character of the overtone series than would wind instruments; as the sound reverberates within the body of an instrument, the instrument's shape will also contribute to differences in the overtones. Only by listening to the sound itself can one distinguish between a silver trumpet and a brass trumpet—or to put it another way, if one wants to learn to distinguish the sound of a silver trumpet from the sound of a brass trumpet, the only thing one can do is to attend to the particular timbral quality of the sounds themselves. (Additionally, we may even be tempted to describe secondary sound structures as carrying information about the reflectance surfaces as well—for instance, wood panelled walls will have different reflectance properties to, say, smooth stone walls—but this would be taking us too far afield.)

It may be that sound waves do transmit information about the originating object. However, concerning the auditory representation of spatiality, we get a different story. While a great deal of information can be gleaned from a complex sound structure, spatial location cannot. The only information that can be had from a complex sound structure is whatever information can be carried by the physical properties of sound—frequency, intensity and duration—and different directions in egocentric space do not possess different physical acoustical qualities. There is no information specific to the primary sound structure of my phone's being on my left that prompts me to look to my left, nor would this information be present in the secondary sound structures either as these are mere derivatives of the primary and should carry no more information *about the sound source* than the primary (what extra information the secondary sound structures carry would not be about the *sound source* but rather would be about the reflectance surface). The representation of spatial location in auditory experience requires a bit more than can be had by the complex sound structure.

Of course, the way in which we detect spatial relations in auditory experience is quite well known. When I hear my phone ringing on my left, the primary sound structure of the ringing phone initiates a process of *encoding* the auditory information first in my left ear with greater intensity at one time, then produces a similar process of encoding with lesser intensity milliseconds later once the sound reaches around my head to my right ear. When the signals from the ears are *decoded* in that part of the brain that handles auditory perception, the difference in intensity level and time difference between the two signals is represented as the sound's being favoured in my left ear. There are thought to be three cognitive mechanisms working in conjunction that serve to locate sound: *interaural time difference* (ITD), *interaural amplitude difference* (IAD) and *pinna filtering*. ITD is a subpersonal cognitive mechanism that is thought to calculate the time delay of the encoding of a sound between the two ears. Time delay in human hearing can be noticeable for differences as short as 20 microseconds. However ITD is not sufficient on its own for spatially locating sounds as, somewhat surprisingly, sensitivity for ITD decreases slightly for sounds that occur at right angles to the perceiver, nor is ITD very effective for high pitched sounds that have a frequency wavelength smaller than the width of the human head (so the sound never refracts around the head to the other ear). In such cases, the listener's auditory system must calculate the intensity difference (IAD) between both ears. Finally, pinna filtering is an effect whereby slight echo patterns are created by sounds as they are reflected off of the many folds inside the outer ear (the pinna) and as they travel through the ear canal. Sounds coming from different directions will cause slightly different reflectance patterns in the pinna. Pinna filtering is the auditory system's primary means of zenith localisation (locating a sound along the up-down axis) and it is the only monaural localisation mechanism of our three.[24] For these reasons, ITD, IAD and pinna filtering should be taken as three distinct mechanisms of auditory calculation working in tandem.[25] While this process is particularly sensitive in bats (as they are able to detect such differences in the distance and direction of objects in their environment as small as the insects they hunt by listening to their own echoes), it is sufficiently sensitive in

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[24] Humans are worse at locating sounds on the front-back or up-down axes than we are at the left-right axis. We can do it, we are just not terribly good at it. The auditory mechanism that helps us to locate sounds along the front-back or up-down axes (pinna filtering) relies on monaural auditory cues, which is less accurate than the binaural mechanisms interaural time delay or interaural amplitude difference.

[25] For more on the psychophysics of space perception, see Moore (1982) Ch. 5; Luce (1993) Part II, §10; and Blauert (1997) Ch. 2.

humans to provide a general direction of objects.[26]

What I am calling 'encoding' is that physiological process by which the acoustical properties of sound waves become converted into the electro-chemical signal of the listener's auditory system. This is basically the physical-physiological process that goes on within the listener's inner ear. As such this is an entirely mechanical process. The electro-chemical signal of the auditory system may be described as having content insofar as it is a subpersonal informational state that represents acoustical properties of sound waves. The content of an auditory informational state co-varies with the physical properties of sound waves such that the content could be described in counterfactual terms.

By contrast, what I am calling 'decoding' is something that happens much further along in the auditory system—in the auditory cortex. In the auditory cortex, the electro-chemical signal that is received from the cochlea is decoded in such a way as to make sense to the listener of the three-dimensional space around them. My suggestion is that it is at the level of decoding that the representation of spatiality is added to the contents of the auditory experience. As such, decoding would be a necessary psychological requirement on the auditory representation of spatiality. The process of decoding would include learned recognitional capacities that are informed by ITD, IAD and pinna filtering. The point is merely that the auditory representation of spatiality is not information that is carried by the sound wave *simpliciter*, but requires the processing of the auditory information in a particular kind of way—the auditory representation of spatiality is not a naïvely acoustical phenomenon; rather it is a psychoacoustical phenomenon.

If we were to put our two candidates for the kind of information that sounds carry into the terms of the MIC, identifying information about the originating object and the spatial location of sounds, then clearly our first candidate would pass. Perceptual states that represent timbral properties are sufficiently grounded in the mind-independent properties of sound waves. The difference between a mental state that represents a sound as having been produced by a silver trumpet and another mental state that represents a sound as having been produced by a brass trumpet will be grounded in the mind-independent timbral properties of the sound wave. There is no psychological

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[26] Incidentally, certain physiological limitations of the human auditory system mean that we are worse at judging along the front-back or up-down axes than we are at judging left-right axis. Think of the

capacity that a listener must possess in order to represent audible differences in timbre. The auditory representation of spatiality, however, does require something mental—it requires a psychological capacity for decoding sound. While the process of decoding is still a largely mechanical-physiological process, it involves more than the simple algorithmic calculation of frequency and intensity differences between the two auditory channels. In the next section I will offer a suggestion of what is involved in the process of decoding such that it might fail the MIC.

11.5 *Cross-Modal Judgment*

Space is not intrinsic to the domain of sound, however space may be intrinsic to the either the domain of vision or touch. A listener learns to make spatial judgments based on the information they receive about the world from vision or touch. My suggestion, then, will be that a listener must equate the information they receive from auditory perception to things that they have seen or felt in the visual or tactile domains—the objects that a listener sees and feels become identified as the source of the sounds they hear.[27] Thus a listener is able to *learn* to make reliable judgments about the spatial location of objects in auditory perception by inferring a relation between the sounds they hear and the objects they see and touch. If behavioural responses to sounds come in the form of some learned behavioural capacity that when a sound is favoured in the left channel, the originating object must be on the left, then the listener must have had to learn that an event in one domain is somehow linked to some fact in another domain. What the listener must learn is to equate the information they receive from the non-spatial domain of sound to one of the inherently spatial domains of vision or touch. This is the important point: that a listener represents spatiality in auditory experience via *cross-domain judgments*, and this would fail to satisfy the MIC.

Here is an example of how cross-modal judgments would play a role in the spatial location of sounds. Think of the experience of hearing a sound coming from behind you. You hear a sound behind you that you are unable to locate accurately, so you turn your head to the left. Upon doing so, your left ear is now turned towards the origin of the sound while your body is still facing straight ahead. Having your head turned in this

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experience of hunting for a noisy fly in a room—we often cannot tell whether the fly is in front, behind, above or below. Pinna filtering is not as effective as ITD or IAD for localising sounds.

manner means that the sound is favoured in your left ear, and so you judge the sound to be coming from behind you. But how did you arrive at the judgment that the sound is *behind* when all that should be present in naïve auditory experience is the sound's being favoured in the *left channel*? If this calculation was a naïve mechanical process, then all we should expect it to do would be to calculate the difference in the left and right auditory channels. Thus, all that one should expect to find in the content of auditory experience when one turns one's head to the left in order to listen to something behind oneself is the judgment that the sound is coming *from the left*. How then does she get to the judgment that the sound is coming from behind?

What is interesting about this example is that the sound continues to sound as though it is coming from behind even though—thinking of the content of the informational state after the process of decoding—all that the auditory state should represent is that the sound is favoured in the left channel. I take it that the reason for this is that the process of decoding is not just a simple, mechanical process. First, the process of decoding calculates the time and intensity differences between the left and right channels, then it must make a cross-modal judgment that relates the result of the calculation to some fact within one of the spatial sense modalities. A listener must judge that the auditory stimulus that presents some sound as being favoured in the left channel correlates to some cause of the sound that can be located (by touch or vision) on the left. A listener must learn to correlate an auditory (non-spatial) stimulus with a (spatial) non-auditory fact. The auditory stimuli prompts the listener to seek out the origin of the sound either by vision or touch, and it does so by the listener's having learned that sound-experiences of a certain kind are reliably linked to states of affairs in the visual or tactile domains. When a listener is presented a sound on their left, they represent the sound as being a certain way. This mental state has a phenomenal quality that is distinct from mental states that represent sounds in other directions from the listener. However this phenomenal quality of the auditory experience would be meaningless to the listener unless they were to learn that sound that are that phenomenal way are caused by objects located in a particular direction, and this directionality is something that is provided by either vision or touch. The same suggestion would apply to pinna filtering though the success rate lowers because the perceptible differences in the encoded echo patterns are so fine.

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[27] Similarly Nudds (2001) argues that experiencing the production of sounds is also a bi-modal phenomenon.

This psychological ability that we have is of course a very primitive ability—it is one that we share with animals—but its primitiveness does not detract from the point that the ability to learn to make judgments about one sense domain from the sensory stimulus given in another sense domain is an ability that an organism must acquire. It is not an ability that a creature has that simply falls out of naïve auditory sensitivity, but must be combined with some other (inherently spatial) sense modality. It is conceivable that a listener could fail to learn to connect auditory experiences with spatial states of affairs, perhaps due to some fault in the listener's auditory processing mechanisms, or some freakish feature of a hostile environment that makes the directionality of sounds unpredictable. Or, rather, imagine a creature that only had a sense of sound—a creature that lacks both the sense of vision and touch. Even if the creature's auditory system was as sensitive as that of a bat's, why should we think that the spatial location of sound would ever enter into its auditory experience?

I suggest that sound localisation fails to satisfy the MIC because it necessarily requires a process of decoding. But why couldn't we say that the location of sounds *is* somehow caught up in the encoding of the sound-event instead? Pinna filtering, for example, provides very intricate and distinct echo patterns that help the listener to locate objects (albeit poorly), and this should be information that is available at the level of encoding. But, this does not work: it is certainly true that the echo patterns provided by pinna filtering is a constitutive part of the informational content of an auditory experience at the level of encoding, however this alone does not allow the listener to make spatial judgments. For pinna filtering to work in this way, what would be required in addition is a recognitional ability that allows one to notice the fine differences between these echo patterns and to relate them to some egocentric spatial position. Pinna filtering works like this: a listener hears a sound; the sound echoing in the pinna creates a particular echo pattern; that pattern is encoded in the content of auditory experience along with the primary sound structure. In order for the listener to know that the particular echo pattern associated with this sound corresponds to the sound source's coming from a particular direction, the listener would have had to built up a store of recognitional templates to relate echo patterns to the directions of egocentric space. And this would again require an exercise of cognition—a recognitional ability—at the level of decoding as this ability to recognise echo patterns simply is not the business of the encoding systems.

Finally, it could be questioned whether this ability to make cross-modal judgments

that I have described is truly a learned ability. Perhaps it is innate instead. This question is closely related to the well-known example that William Molyneux once put to John Locke:

> Suppose a Man born blind, and now adult, and taught by his touch to distinguish between a Cube, and a Sphere of the same metal, and nighly of the same bigness, so as to tell, when he felt one and t'other, which is the Cube, which the Sphere. Suppose then the Cube and Sphere placed on a Table, and the Blind Man to be made to see. Quaere, Whether by his sight, before he touch'd them, he could now distinguish, and tell, which is the Globe, which the Cube?[28]

Molyneux answered his own question negatively, and Locke agreed. Their thought was that, in this case, the subject was able to identify the sphere and cube by reference to their experience of touch, but as the subject has yet to have an experience of seeing either a sphere or a cube, then we should not think of the subject as able to distinguish the two by sight alone. Their claim can be interpreted as arguing that perceptual concepts such as *cube* or *sphere* are not unified over all sense modalities. Rather there may be distinct concepts for each sense modality. In the case above, it is thought that the subject does possess the tactile concepts *cube* and *sphere*, but due to their blindness does not have any proficiency with the visual concepts *cube* and *sphere*.

Applying this thought to the present discussion, the question about whether this ability to make a judgment about one sense domain from the basis of sensory evidence given in another sense domain must be learned or is innate is really a question about whether the subject has any reason to believe *a priori* that certain evidential grounds that are given in one perceptual domain should be necessarily tied to judgments or beliefs about another domain. My suggestion is that there is not. When a listener hears, say, that a certain sound-event is favoured in their right ear, that might give them good evidential grounds for forming the belief that '*x* is to my right', and the rational linkage between the auditory perceptual experience and the spatial belief might be a necessary linkage. But, whatever necessary link there is between hearing a sound as being a certain way and making judgments or forming beliefs about the spatial layout of the surrounding environment is something that a listener must learn *a posteriori*. To repeat, what they must learn is that some state of affairs of which they are able to make judgments about in one sense domain (hearing) is necessarily related to some state of affairs which they are able to infer in another sense domain (touch or sight).

In conclusion, my suggestion is that the auditory representation of spatiality is an

aspect of experience that only becomes represented at the level of the *decoding* of auditory information, not in the *encoding*. By saying that some information is represented at the decoded rather than encoded level, I mean that, when a sound-event occurs, the process of encoding that goes on in the inner ear and the resulting informational state does not, at that point, include spatial information. Rather such information only arises once the signals from the two auditory channels are decoded. Decoding, while being a subpersonal and largely mechanical process, requires the listener's having acquired an ability to make cross-modal judgment between an auditory stimuli and an expectation of something's being the case in one of the inherently spatial sense modalities. The process of decoding adds something (spatiality) to the content of the auditory experience that was not there at the point of encoding. Perhaps a better suggestion would be that spatiality is not literally added to the auditory experience, rather all that happens is that the auditory information becomes correlated with our sense of spatiality that is already inherent in vision or touch. The process of decoding is a psychologically necessary condition for the auditory representation of spatiality and therefore would fail to satisfy the MIC. While my discussion in this chapter raises many more questions—like for instance, whether the process of decoding should truly count as a conceptual ability, or whether the representation of spatiality in auditory experience should instead count as mediated contents—I hope that it has been sufficient to show that, if my suggestion here is correct, then the representation of musical pitch is not the only auditory phenomenon that fails to satisfy the MIC.

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[28] Locke (1700): 88-89.

CHAPTER TWELVE:

CONCLUSIONS: UNDERSTANDING MUSIC

12.1 *Summary*

The phenomenological claim for musical understanding holds that the phenomenology of musical experience holds in common for both trained and untrained listeners and that musical understanding is grounded in the listener's enjoying a perceptual experience with a certain content. If this claim were successful, it could be used to argue that untrained listeners are at no disadvantage to understand some piece of music compared to trained listeners. DeBellis' argues on the back of a strong intentionalist theory of musical perception that the content of an untrained listener's mental state represents the same type of content as that of a trained listener—as two intentional states that are phenomenally indistinguishable would be intentionally indistinguishable on the strong intentionalist's view. Untrained listeners enjoy the same type of content-bearing mental states as trained listeners. And if trained listeners and untrained listeners do enjoy the same type of mental contents, then these contents must not require the listener's possession of any music-theoretic conceptual abilities for their representation. The contents of musical experience must be nonconceptual.

The empirical evidence on the perception of musical pitch does show, however, that listeners must possess a special psychological ability for the representation of musical pitch. Musical pitch is not a primary or even secondary property. It is rather a tertiary property—a property of representational experience. Tonality is a property that enters into the contents of experience at a very late stage and is mediated by a psychological ability. The representation of musical pitch fails to satisfy the Mind-Independence Constraint—it is not an instance of naïve perceptual experience.

How strongly can we take the results of this empirical evidence? I have offered two interpretations of the psychologists' hypothesis. On one interpretation, the failure to satisfy the MIC means that the contents of musical experience cannot be nonconceptual. On this strong interpretation, the psychological ability that is required for the representation of musical pitch should be thought of as a conceptual ability. It would be considered a conceptual ability akin to that of spatial reasoning. It is a conceptual ability that operates without the listener's having to exercise conscious control over it

though the effects of this ability are felt in the listener's conscious personal-level experience.

However, it is acknowledged that there may be powerful arguments against this interpretation. Though the empirical evidence is strongly in favour of the existence and operation of some kind of psychological ability, it may be objected that these abilities are too primitive or subpersonal to count as conceptual abilities. Even on the account of conceptual abilities that I previously offered in Chapter Five—as non-linguistic, inferential or recognitional abilities as might be required to explain cases of knowing when—one may still reject the claim that the psychological abilities required for the representation of musical pitch are conceptual abilities.

In the face of these objections I offered a weaker interpretation of the psychologists' hypothesis, though this interpretation required that we draw a new distinction between mediated and unmediated contents. On this view, the contents of musical experience would still be nonconceptual—the psychological abilities required for the representation of musical pitch would not count as conceptual abilities—and yet the idea of mediated contents take into account the point that the contents of musical experience do not represent wholly mind-independent properties of the external world. Mediated contents are mind-dependent contents and they represent intentional properties or tertiary qualities.

On either the strong interpretation or the weak interpretation, the phenomenological claim does not fare well. The problem for the phenomenological claim is that both the strong and weak interpretations provide the theoretical space to drive a wedge between the mind-independent publicly accessible properties of sound-events and the phenomenology of musical experience. Listeners require a certain psychological ability for the representation of musical pitch, and there is no guarantee that any two listeners would possess saliently similar psychological abilities. For instance, much empirical evidence shows that children of a certain age are unable to offer judgments on the fittingness or completion of a musical phrase. Some experiments have shown children to be unresponsive to tonal dissonances that are obvious to an adult listener. Furthermore, there would be no guarantee that the psychological abilities that adult listeners possess would be universal across cultural boundaries. If these abilities must be learned from experience, then it may be the case that the kind of abilities that a Western listener acquires could be wholly different to the kind of abilities that listeners of far distant cultures acquire.

There is much empirical evidence as well as enthnomusicological evidence showing the existence of many 'musical universals'—musical qualities that nearly all known tonal systems share. For instance, the intervals of the octave and the perfect fifth appear in nearly every known tonal system. Additionally, the principles of subdividing and octave seem to follow common principles. Almost all musical scales divide the octave unevenly, and the number of distinct steps in a scale typically ranges between 5 and 9.[1] Interesting as this is, we must still admit that the differences between the music of different cultures is vast. My suggestion is that the qualitative differences in musical experience between listeners of distant cultures would be equally as vast.

Of course, the debate over musical understanding is a debate about what is required for listeners of the same cultural background to understand a piece of music, so shouldn't we think that the qualitative differences between these listeners would be very slight? Among listeners having the same cultural background, there would be wide convergence in the phenomenology of musical experience. Adult listeners enculturated into the Western tonal system would broadly hear music in much the same way. However, the differences would be most apparent in the details, though it would be an empirical matter to discover what differences are most acute. Does a listener who has received extensive musical training really possess a more developed ear such that their experience is qualitatively different from the untrained listener? This thought makes the Humean standard of taste spring to mind. Does the well practised judge who exhibits delicacy of taste, freedom from prejudice, good sense and a breadth of experience have a qualitatively different experience from the layman? We might compare the differences between the trained and the untrained listener using an analogy to wine tasting. I am ashamed to admit that I have a very unrefined palate. I can distinguish very broad differences in wines—I can tell the difference between a spicy and a fruity red wine for instance—but that is all. I imagine that my experience of tasting wines must be analogous to what it is like for untrained listeners to listen to music. The trained listener, like the experienced wine taster, will enjoy a richness and fineness of detail that would be largely lacking in the untrained listener.

What I find so interesting about the case of musical experience is that the qualitative differences that arise between two listeners cannot be attributed to any physical mind-independent cause. Provided that both listeners have an auditory system that functions

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[1] See Sloboda (1985): §7.2.2.

in the same way, the contents of two listeners' experiences at the informational level of the encoded signal may be remarkably similar—perhaps they do not differ in any way that would significantly effect the qualitative aspect of their experience if the two listeners did possess similar psychological abilities. What difference there is does not (always) arise at the level of encoding; rather much of the qualitative dissimilarities arise at the level of decoding, when the auditory signal is interpreted as music. Again, it should be left to the empirical psychologists to discover the causes of phenomenological dissimilarities and the extent to which two listeners' phenomenal experience can differ, however I hope to have shown here that the phenomenological claim is untenable as a basis for understanding music.

12.2 *Musical Understanding*

My project in this dissertation has been to show that the phenomenological claim is unfounded. I hope my arguments have been sufficient to show the weakness of the phenomenological claim. I could stop here having reached my intended goal, however I do not want to leave the issue of musical understanding unresolved. Before leaving this discussion, I would like to offer a few suggestions on how to find our way back to a fruitful discussion of musical understanding.

I had claimed early on that the debate over musical understanding is the result of two desiderata, (1) that there is a correct or optimal way to understand a piece of music, and (2) that untrained listeners are at no disadvantage to trained listeners to correctly understand a piece of music. If we reject (1) then we have a clear way to accommodate the untrained listener. Rejecting (1) allows us to think that there might be differing degrees of understanding, and this seems to square with the intuition that there can be differing degrees of appreciation. The problem with rejecting (1), however, is that the notion of understanding music would then seem empty and vacuous. If musical understanding merely amounts to the way in which a listener hears the music, then why bother calling it 'understanding'? Once we reject (1), then we also lose purchase on the thought that one listener can understand the music more deeply or in a better way than another listener. There would be no sense in saying of someone that they 'fail to understand the music', as by rejecting (1) it would simply be impossible for someone to fail to understand, unless failure to understand meant something like failure to experience some sound-event as music at all. Rejecting (1) seems to leave us with an

empty notion of understanding. On the other hand, the trouble with rejecting (2) is well known. What, on this view, would count as understanding? Would this mean that only Mozart understands the music of Mozart? There seems to be no obvious answer that would be non-arbitrary.

As a compromise, I would like to offer a weakened version of (2). What is causing trouble for accepting (2) is that it seems to offer no restriction on the abilities of the listener. A weakened version of (2) might hold that there is some degree of training that is required for understanding, though this does not need to amount to music-theoretic knowledge. Weakening (2) might allow us to accommodate our intuitions about musical understanding, however there is an inherent problem in offering a weakened version of (2). It becomes very difficult to find a non-arbitrary point at which to draw the line between trained and untrained listeners. How much training is enough to ensure understanding? The position we must try and sail between is the Scylla of demanding too much effort and attention from the listener that understanding requires music-theoretic knowledge and the Charybdis of requiring so little from the listener that we are left with an empty and vacuous notion of understanding.

The suggestion that I wish to make will not be terribly different from those offered by Davies (2003), Kivy (1990) and Levinson (1997). I will merely try to make it explicit how this suggestion might accommodate our intuitions on musical understanding. The intuitions that ought to be satisfied are these: that there is a meaningful distinction between understanding and misunderstanding a work, that music-theoretic knowledge is not requisite on understanding, and that our account of understanding must be grounded in the phenomenology of the perceptual experience. That I would wish to incorporate this last point into my account of understanding may come as a surprise, so I will briefly explain why I have rejected DeBellis' account only to now try to accommodate his point. The problem is that DeBellis' account is too accommodating. It is indefensible that the phenomenal quality of musical experience for an *untrained* listener is qualitatively like the experience of the trained listener. I think it is right in claiming that musical understanding should be grounded in the contents of perceptual experience—it is for this reason that I initially took such an interest in DeBellis' view. However, alongside this point, we must acknowledge that there can be great differences in the phenomenology of musical experience between two listeners such that the untrained listener is at a disadvantage. It takes quite a bit of training to get to the point where the phenomenology of experience is rich enough to

achieve understanding. And understanding music is an achievement—it can be hard work that takes much attention and concentration.

The weakened version of the argument would look like this: (1) there is a correct way to understanding a piece of music, and (2*) such understanding need not be expressible in music-theoretic terms. The difference between (2) and (2*) is that, on the latter, listeners need to have achieved a certain degree of sensitivity and discrimination in music listening. This does not necessarily constitute music-theoretic knowledge, though it does form the foundations upon which such conceptual knowledge can take hold. For instance, consider the intermediate ear-training student example that DeBellis offers as a motivation for accepting the phenomenological claim. These students are very highly trained—they are conservatory students. What they are doing in ear-training class is beginning to put their musical experience into theoretical terms. These students have probably long since achieved what is required for musical understanding.

A proper account of musical understanding should tell us something about what it is to aesthetically appreciate a musical work. If we were to try and find a line between understanding and failing to understand a musical work, perhaps it would be this: a listener understands a musical work when and only when their listening skills are sufficiently trained to the point where each salient feature of the musical work makes the appropriate contribution to the listener's phenomenal experience. In its most basic statement, the idea is that a listener understands the music when nothing relevant to the composition of the piece escapes their attention. Now this statement needs to be qualified. How detailed should the listener's hearing be? Does this mean that the listener must be able to distinguish each line of a musical work and identify it? As a general statement, I would expect that the listener's hearing should be as detailed as the musical composition would require. Some compositions are more difficult than others. The degree of sensitivity required to understand 'Mary Had a Little Lamb' is very low and would be achieved by any listener who is able to hear when the melody is at its most tense and when it is at its most resolved. The understanding listener need not recognise that the note at the end of the first phrase (see Figure 3.2, page 48) is the mediant, but the listener must recognise the tension of that note relative to the tonal context. Comparatively, the degree of sensitivity required to understand, say, Stravinski's *Rite of Spring* is something that would take years to develop.

Let us take some less difficult cases. It would not be necessary to hear, say, every note of the counterpoint being played by the second violin, but it would be required that

the listener hear the harmonic tension between the first and second violin. It would not be necessary for the listener to hear the exact voicing of the chords that a jazz pianist uses, but it would be required that they hear the harmonic function of the chord. Furthermore, there would be other audible features of a musical performance that the listener would not be required to hear in order to understand the musical work. It is not necessary that the listener should distinguish, say, the sound of a silver trumpet from the sound of a brass trumpet. This is unnecessary because it is irrelevant to the identity of the work. This is just the familiar distinction between identifying performances and identifying musical works. However it would be necessary that the listener could distinguish the trumpets from the saxophones. As Levinson claims, the instrumentation may be a necessary feature of a musical work,[2] but this would not mean that the make of the instrument was too. A listener would need to develop a different set of listening skills for different musical genres. The listening skills that one needs to sensitively attend to jazz music would differ from the listening skills that one needs to sensitively attend to baroque music. Again it would not be necessary that a listener should be able to give a name to each feature of the auditory experience that they must discriminate, though it is required that the listener should be able to sensibly discriminate and attend to those features.

While this suggestion of what constitutes musical understanding is far from complete, I hope to have shown that my critical conclusions of the phenomenological claim does not sever us from ever hoping to explain musical understanding. My point has been that musical understanding must begin with the auditory sensitivity of the listener. If the listener is unresponsive to certain phenomenal qualities of the music that comprehending listeners are sensitive to, then this listener cannot hope to understand the music. Understanding must be a normative notion or else it amounts to little more than relativism. Does Mrs. Munt understand the music in some way comparable to that of Tibby? Our first question should be: can she discriminate the music in some way comparable to Tibby?

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[2] Levinson (1990).

BIBLIOGRAPHY

ALSTON, William (1990). 'Externalist Theories of Perception'. *Philosophy and Phenomenological Research* 51: 73-97.

ARMSTRONG, D. M. (1961). *Perception and the Physical World.* London: Routledge & Kegan Paul.

AYER, A. J. (1936). *Language, Truth and Logic.* Harmondsworth: Penguin Books.

AYER, A. J. (1940). *The Foundations of Empirical Knowledge.* London: Macmillan Press.

AYER, A. J. (1973). *The Central Questions of Philosophy.* Harmondsworth: Penguin Books.

BARTEL, Christopher (2006). 'Musical Thought and Compositionality'. *Postgraduate Journal of Aesthetics* 3 (1): 25-36.

BERKELEY, George (1713 [1949]). *Three Dialogues between Hylas and Philonous*, in *The Works of George Berkeley Bishop of Cloyne*, Vol. 2, A. A. Luce and T. E. Jessop, eds. London: Thomas Nelson and Sons Ltd.

BERMÚDEZ, Jose Luis (1998). *The Paradox of Self-Consciousness.* London: MIT Press.

BERMÚDEZ, Jose Luis (2003a). *Thinking Without Words.* Oxford: Oxford University Press.

BERMÚDEZ, Jose Luis (2003b). 'Nonconceptual Content: From Perceptual Experience to Subpersonal Computational States' in *Essays on Nonconceptual Content*, York Gunther, ed.: 183-216. Originally printed in *Mind and Language* 1995, 10 (4): 333-369.

BERMÚDEZ, Jose Luis (2003c). 'Peacocke's Argument against the Autonomy of Nonconceptual Representational Content' in *Essays on Nonconceptual Content*, York Gunther, ed.: 293-307. Originally printed in *Mind and Language* 1994, 9: 402-418.

BERMÚDEZ, Jose Luis and Fiona Macpherson (1998). 'Nonconceptual Content and the Nature of Perceptual Experience'. *Electronic Journal of Analytic Philosophy*, 6. Accessed on 22 Jun., 2005: http://ejap.louisiana.edu/EJAP/1998/contents.html.

BHARUCHA, J. J. (1991). 'Pitch, Harmony, and Neural Nets: A Psychological Perspective'. In Peter M. Todd and D. Gareth Loy, eds., *Music and Connectionism*. Cambridge, MA: MIT Press.

BHARUCHA, J. J. and C. L. Krumhansl (1983). 'The Representation of Harmonic Structure in Music: Hierarchies of Stability as a Function of Context.' *Cognition*, 13: 63-102.

BLAUERT, Jens (1997). *Spatial Hearing*: *The Psychophysics of Sound Localization*. London: MIT Press.

BREWER, Bill (1999). *Perception and Reason*. Oxford: Clarendon Press.

BUDD, Malcolm (1985). 'Understanding Music'. *Proceedings of the Aristotelian Society Supplementary Volume* 59: 233-248.

BUDD, Malcolm (1995). *Values of Art*. London: Penguin Books.

BURNS, E. M. and W. D. Ward (1977). 'Categorical Perception of Musical Intervals'. *Journal of the Acoustical Society of America*, 55: 456(A).

BURNS, E. M. and W. D. Ward (1978). 'Categorical Perception—Phenomenon or Epiphenomenon: Evidence from Experiments in the Perception of Musical Intervals'. *Journal of the Acoustical Society of America*, 63(2): 456-468.

CARTERETTE, Edward C. and Roger A. Kendall (1999). 'Comparative Music Perception and Cognition', in *The Psychology of Music*, 2nd edition. Diana Deutsch, ed.: 725-791.

CHALMERS, David (2004). 'The Representational Character of Experience', in *The Future for Philosophy*, B. Leiter, ed. Oxford: Oxford University Press.

CRANE, Tim ed. (1992a). *The Contents of Experience*: *Essays on Perception*. Cambridge: Cambridge University Press.

CRANE, Tim (1992b). 'The Nonconceptual Content of Experience', in *The Contents of Experience*: *Essays on Perception*, Tim Crane, ed.

CRANE, Tim (1995). *The Mechanical Mind*. Harmondsworth: Penguin Books.

CRANE, Tim (2001). *Elements of Mind*. Oxford: Oxford University Press.

CRANE, Tim (2003). 'The Waterfall Illusion' in *Essays on Nonconceptual Content*, York Gunther, ed.: 231-236. Originally printed in *Analysis* 1988, 48: 142-147.

CRANE, Tim (2006). 'Is There a Perceptual Relation?', in *Perceptual Experience*. Gendler and Hawthorne, eds.: 126-146.

CROWTHER, T. M. (2001). *Reflecting on Experience: Nonconceptual Content in the Philosophy of Perception.* Ph.D. dissertation. King's College, University of London.

CRITCHLEY, Macdonald and R. A. Henson, eds. (1977). *Music and the Brain: Studies in the Neurology of Music.* London: William Heinemann Medical Books Ltd.

CUDDY, Lola L. and Betsy Badertscher (1987). 'Recovery of the Tonal Hierarchy: Some Comparisons Across Age and Levels of Musical Experience`. *Perception and Psychophysics*, 41: 609-620.

CURRIE, Gregory (2004a). 'The Representational Revolution'. *Journal of Aesthetics and Art Criticism* 62 (2): 119-128.

CURRIE, Gregory (2004b). *Arts and Minds.* Oxford: Oxford University Press.

CUSSINS, Adrian (1990). 'Content, Conceptual Content, and Nonconceptual Content', from 'The Connectionist Construction of Concepts', in *The Philosophy of Artificial Intelligence*, Margaret Boden, ed.: 380-400. Reprinted with postscript in *Essays on Nonconceptual Content*, York Gunther, ed.: 133-163.

DAVIES, Stephen (2003). 'Musical Understanding and Musical Kinds', in *Themes in the Philosophy of Music.* Oxford: Oxford University Press: 213-232.

DEBELLIS, Mark (1991). 'The Representational Content of Musical Experience'. *Philosophy and Phenomenological Research* 51 (2): 303-324.

DEBELLIS, Mark (1995). *Music and Conceptualization.* Cambridge: Cambridge University Press.

DEBELLIS, Mark (1999). 'What is Musical Intuition? Tonal Theory as Cognitive Science'. *Philosophical Psychology* 12 (4): 471-501.

DEBELLIS, Mark (2002). 'Musical Analysis as Articulation'. *Journal of Aesthetics and Art Criticism* 60 (2): 119-135.

DEBELLIS, Mark (2005). 'Conceptual and Nonconceptual Modes of Music Perception'. *Postgraduate Journal of Aesthetics*, 2 (2): 45-60. Accessed on 10 Aug., 2005: http://www.british-aesthetics.org

DEBELLIS, Mark (2006). 'What is Musical Content, and What is its Proper Reception?' Conference paper: *Mind and Music*, Columbia University, 4-5 March, 2006.

DEUTSCH, Diana (1987). 'The Tritone Paradox: Effects of Spectral Variables'. *Perception and Psychophysics*, 41: 563-575.

DEUTSCH, Diana ed. (1999). *The Psychology of Music* 2nd Ed. London: Academic Press.

DEUTSCH, Diana, and Trevor Henthorn, Elizabeth Marvin and HongShuai Xu (2004). 'Perfect Pitch in Tonal Language Speakers Carries Over to Music'. Paper given at the 148th meeting of the Acoustical Society of America, November 2004. Available online at: http://www.aip.org/148th/deutsch.html.

DRETSKE, Fred (2003). 'Sensation and Perception' in *Essays on Nonconceptual Content*, York Gunther, ed.:25-41. Originally printed in *Knowledge and the Flow of Information*, Cambridge, MA: MIT Press, 1981.

DOWLING, W. Jay and Dane Harwood (1986). *Music Cognition*. San Diego: Academic Press.

ELLIS, Alexander J. (1880). 'On the History of Musical Pitch.' *Journal of the Society of Arts*: 293- 336. Reprinted in Alexander J. Ellis and Arthur Mendel, *Studies in the History of Musical Pitch* (1968), Amsterdam: Frits Knuf.

EVANS, Gareth (1981). 'Semantic Theory and Tacit Knowledge', in *Wittgenstein: To Follow a Rule*. Steven Holtzman and Christopher Leich, eds. London: Routledge & Kegan Paul, pp. 118-137.

EVANS, Gareth (1982). *The Varieties of Reference*. John McDowell, ed. Oxford: Clarendon Press.

FISKE, Harold (1990). *Music and Mind: Philosophical Essays on the Cognition and Meaning of Music*. Lampeter: Edwin Mellen.

GEACH, Peter (1957). *Mental Acts*. London: Routledge and Kegan Paul.

GENDLER, Tamar Szabó and John Hawthorne, eds. (2006). *Perceptual Experience*. Oxford: Oxford University Press.

GUNTHER, York, ed. (2003). *Essays on Nonconceptual Content*. London: MIT Press.

HARGREAVES, David J. (1986). *The Developmental Psychology of Music*. London: Cambridge University Press.

HARRISON, Andrew (1978). *Making and Thinking*. Sussex: Harvester Press.

HASS, Jeffrey (2004). *Introduction to Computer Music: Volume One*. http://www.indiana.edu/~emusic/etext/acoustics/chapter1_intro.shtml

HELMHOLTZ, Hermann (1885). *On the Sensations of Tone as a Physiological Basis for the Theory of Music*. Alexander J. Ellis, trans. New York: Dover Publications, 1954.

HILBERT, David R. and Mark Eli Kalderon (2000). 'Color and the Inverted Spectrum', in *Color Perception: Philosophical, Psychological, Artistic and Computational Perspectives*. S. Davis, ed. Vancouver Studies in Cognitive Science, 9. Oxford: Oxford University Press.

JACKSON, Frank (1977). *Perception: A Representative Theory*. Cambridge: Cambridge University Press.

JOHNSON, Mark (1987). *The Body in the Mind: The Bodily Basis of Meaning, Imagination and Reason*. Chicago: Chicago University Press.

JORDAN, D. S. (1987). 'Influence of the Diatonic Tonal Hierarchy at Microtonal Intervals'. *Perception and Psychophysics* 41: 482-488.

KANT, Immanuel (1781/1787). *The Critique of Pure Reason*. Norman Kemp Smith, trans. London: Pelgrave Macmillan, 2003.

KELLY, Sean D. (2001a). 'Demostrative Concepts and Experience'. *Philosophical Review* 110 (3): 397-419.

KELLY, Sean D. (2001b). 'The Nonconceptual Content of Perceptual Experience: Situation Dependence and Fineness of Grain'. *Philosophy and Phenomenological Research* 62 (3): 601-608.

KIVY, Peter (1990). *Music Alone*. London: Cornell University Press.

KRIPKE, Saul (1972). *Naming and Necessity*. Oxford: Blackwell.

KRUMHANSL, Carol L. (1979). 'The Psychological Representation of Musical Pitch in a Tonal Context'. *Cognitive Psychology* 11 (3): 346-374.

KRUMHANSL, Carol L. (1990). *Cognitive Foundations of Musical Pitch*. Oxford: Oxford University Press.

KRUMHANSL, Carol L. and E. J. Kessler (1982). 'Tracing the Dynamic Changes in Perceived Tonal Organization in a Spatial Representation of Musical Keys'. *Psychological Review* 89: 334-368.

KRUMHANSL, Carol L. and R. N. Shepard (1979). 'Quantification of the Hierarchy of Tonal Functions within a Diatonic Context'. *Journal of Experimental Psychology: Human Perception and Performance* 5: 579-594.

LARSON, Richard (2001). 'The Grammar of Intensionality'. *Logical Form and Natural Language*. G. Preyer and G. Peter, eds. Oxford: Oxford University Press: 228-262.

LERDAHL, Fred and Ray Jackendoff (1983). *A Generative Theory of Tonal Music*. London: MIT Press.

LEVINSON, Jerrold (1990). 'What a Musical Work Is'. In *Music, Art and Metaphysics*. London: Cornell University Press: 63-88.

LEVINSON, Jerrold (1996a). *The Pleasures of Aesthetics*. London: Cornell University Press.

LEVINSON, Jerrold (1996b). Book review: *Music and Conceptualization* by Mark DeBellis. *Music Perception* 14 (1): 85-93.

LEVINSON, Jerrold (1997). *Music in the Moment*. London: Cornell University Press.

LEVINSON, Jerrold ed. (2003a). *The Oxford Handbook of Aesthetics*. Oxford: Oxford University Press.

LEVINSON, Jerrold (2003b). 'Musical Thinking'. *Midwest Studies* 27: 59-68.

LEWIS, David (1986). *On the Plurality of Worlds*. Oxford: Blackwell.

LOCKE, John (1689 [1975]). *An Essay Concerning Human Understanding*. Oxford: Oxford University Press.

LUCE, R. Duncan (1993). *Sound and Hearing: A Conceptual Introduction*. London: Lawrence Erlbaum Associates.

LUNTLEY, Michael (2003). 'Nonconceptual Content and the Sound of Music'. *Mind and Language* 51: 402-426.

MARGOLIS, E. and Stephen Laurence (1999a). *Concepts: Core Readings*. London: MIT Press.

MARGOLIS, E. and Stephen Laurence (1999b). 'Concepts and Cognitive Science', in *Concepts*, Margolis and Laurence, eds., pp. 3-81.

MARGOLIS, E. and Stephen Laurence (2005). 'Concepts'. *Stanford Encyclopedia of Philosophy*, http://plato.stanford.edu/entries/concepts/: Accessed 12 Jan., 2006.

MARTIN, M. G. F. (2002) 'The Transparency of Experience'. *Mind and Language* 17: 376-425.

MARTIN, M. G. F. (2003). 'Perception, Concepts and Memory' in *Essays on Nonconceptual Content*, York Gunther, ed.: 237-250. Originally printed in *Philosophical Review* 1992, 101 (4): 745-764.

MARTIN, M. G. F. (forthcoming). *The Claims of Transparency*. Accessed on the author's website 17 Sept., 2006: http://www.homepages.ucl.ac.uk/~uctymfm/

MCDOWELL, John (1994). *Mind and World*. London: Harvard University Press.

MCDOWELL, John (1998a). 'Precis of *Mind and World*' and 'Reply to Commentators'. *Philosophy and Phenomenological Research* 58 (2): 365-431.

MCDOWELL, John (1998b). 'Aesthetic Value, Objectivity, and the Fabric of the World', in his *Mind, Value and Reality*. London: Harvard University Press.

MCGINN, Colin (1989). *Mental Content*. Oxford: Blackwell.

MCGINN, Colin (1997). *The Character of Mind*. Oxford: Oxford University Press.

MCMAHON, Jennifer (1996). 'Aesthetic Perception'. *Communication and Cognition* 29 (1): 37-64.

MCMAHON, Jennifer (2000). 'Perceptual Principles as the Basis for Genuine Judgments of Beauty'. *Journal of Consciousness Studies* 7 (8/9): 29-35.

MCMAHON, Jennifer (2003). 'Perceptual Constraints and Perceptual Schemata: The Possibility of Perceptual Style'. *Journal of Aesthetics and Art Criticism* 61 (3): 259-272.

MEYER, Leonard B. (1956). *Emotion and Meaning in Music*. London: University of Chicago Press.

MOORE, Brian C. J. (1982). *An Introduction to the Psychology of Hearing*. London: Academic Press.

MOORE, G. E. (1905). 'The Nature and Reality of Objects of Perception'. *Proceedings of the Aristotelian Society* 6: 68-127.

MOORE, G. E. (1965a). 'Some Judgments of Perception, in *Perceiving, Sensing and Knowing*. R. J. Schwartz, ed., pp. 1-28.

MOORE, G. E. (1965b). 'Visual Sense-Data', in *Perceiving, Sensing and Knowing*. R. J. Schwartz, ed., pp. 130-137.

NUDDS, Matthew (2001). 'Experiencing the Production of Sounds'. *European Journal of Philosophy* 9: 210-229.

O'CALLAGHAN, Casey (unpublished, a). 'The Argument from Vacuums'. Accessed from the author's website, 8 Mar., 2005: http://abacus.bates.edu/~cocallag/research/

O'CALLAGHAN, Casey (unpublished, b). 'Echoes'. Accessed from the author's website, 8 Mar., 2005: http://abacus.bates.edu/~cocallag/research/

O'CALLAGHAN, Casey (forthcoming, 2006). 'Sounds and Events', in *Sounds and Perception: New Philosophical Essays*. Matthew Nudds and Casey O'Callaghan, eds. Oxford: Oxford University Press. Accessed on the author's website 8 Mar., 2005: http://abacus.bates.edu/~cocallag/research/

O'SHAUGHNESSY, Brian (1957). 'The Location of Sounds'. *Mind* 66: 471-490.

PASNAU, Robert (1999). 'What is Sound?'. *Philosophical Quarterly* 49: 309-324.

PASNAU, Robert (2000). 'Sensible Qualities: The Case of Sound'. *Journal of the History of Philosophy* 38(1): 27-40.

PEACOCKE, Christopher (1983). *Sense and Content*. Oxford: Clarendon Press.

PEACOCKE, Christopher (1984). 'Colour Concepts and Colour Experience'. *Synthese* 58: 365-381.

PEACOCKE, Christopher (1986). *Thoughts: An Essay on Content*. Oxford: Basil Blackwell.

PEACOCKE, Christopher (1989). 'Possession Conditions: A Focal Point for Theories of Concepts'. *Mind and Language* 4 (1-2): 51-56.

PEACOCKE, Christopher (1992a). *A Study of Concepts*. London: MIT Press.

PEACOCKE, Christopher (1992b). 'Scenarios, Concepts, and Perception', in *The Contents of Experience*, Tim Crane, ed. (1992). Reprinted in *Essays on Nonconceptual Content*, York Gunther, ed.: 107-132.

PEACOCKE, Christopher (1998). 'Nonconceptual Content Defended'. *Philosophy and Phenomenological Research* 58 (2): 381-388.

PEACOCKE, Christopher (2001). 'Does Perception have a Nonconceptual Content?'. *The Journal of Philosophy* 98: 239-264.

PEACOCKE, Christopher (2003). 'Nonconceptual Content: Kinds, Rationales, and Relations' in *Essays on Nonconceptual Content*, York Gunther, ed.: 309-322, with postscript. Originally printed in *Mind* 1994, 9:419-429.

QUINE, W. V. O. (1953). *From a Logical Point of View*. New York: Harper and Row Publishers.

QUINE, W. V. O. (1956 [1966]). *Ways of Paradox*. New York: Random House.

RAFFMAN, Diana (1993). *Language, Music and Mind.* London: MIT Press.

ROBINSON, Howard (1994). *Perception.* London: Routledge.

ROHOLT, Tiger (unpublished). 'Groove: Qualia and Musical Nuance'. Accessed on 5 Aug., 2004: http://www.columbia.edu/~tcr19/papers.htm.

RUSSELL, Bertrand (1905). 'On Denoting'. *Mind*: 479-493.

RUSSELL, Bertrand (1912). *The Problems of Philosophy.* Oxford: Oxford University Press.

SAVILE, Anthony (1993). *Kantian Aesthetics Persued.* Edinburgh: Edinburgh.

SCHENKER, Heinrich (1979). *Der freie Satz.* Translated and edited by Ernst Oster. New York: Longman.

SCRUTON, Roger (1983). 'Understanding Music'. *The Aesthetic Understanding.* Manchester: Carcanet Press.

SEDIVY, Sonia (1996). 'Must Conceptually Informed Perceptual Experience Involve Nonconceptual Content?'. *Canadian Journal of Philosophy* 26 (3): 413-431.

SHEPARD, Roger N. and Daniel S. Jordan (1984). 'Auditory Illusions Demonstrating that Tones are Assimilated to an Internalized Musical Scale'. *Science* 226: 1333-1334.

SHUTER, Rosamund (1968). *The Psychology of Musical Ability.* London: Methuen.

SIBLEY, Frank (2001). *Approach to Aesthetics*: *Collected Papers on Philosophical Aesthetics.* John Benson, Betty Redfern and Jeremy Roxbee Cox, eds. Oxford: Clarendon Press.

SIEGEL, Susanna (2005). 'The Contents of Perception', in the *Stanford Encyclopedia of Philosophy* (Spring 2006 Edition), Edward N. Zalta (ed.), http://plato.stanford.edu/archives/spr2006/entries/perception-contents/.

SLOBODA, John A. (1985). *The Musical Mind*: *The Cognitive Psychology of Music.* Oxford: Clarendon Press.

SMITH, A. D. (2002). *The Problem of Perception.* London: Harvard University Press.

STALNAKER, Robert (1984). *Inquiry.* London: MIT Press.

STALNAKER, Robert (2003). 'What Might Nonconceptual Content Be?', in *Essays on Nonconceptual Content*, York Gunther, ed.: 95-106.

STANLEY, Jason and Timothy Williamson (2001). 'Knowing How'. *Journal of Philosophy* 98 (8): 411-444.

STRAWSON, P. F. (1959). *Individuals*. London: Methuen.

TYE, Michael (1992). 'Visual Qualia and Visual Content', in *The Contents of Experience*, Tim Crane, ed. pp. 158-176.

TYE, Michael (1995). *Ten Problems of Consciousness*. London: MIT Press.

WESTERGAARD, Peter (1975). *Introduction to Tonal Theory*. New York: W. W. Norton.

WOOD, Alexander (1962). *The Physics of Music*, 6th ed. London: Methuen & Co. Ltd.

WRIGHT, Crispin (1992). *Truth and Objectivity*. London: Harvard University Press.

ZBIKOWSKI, Lawrence (2002). *Conceptualizing Music*. Oxford: Oxford University Press.